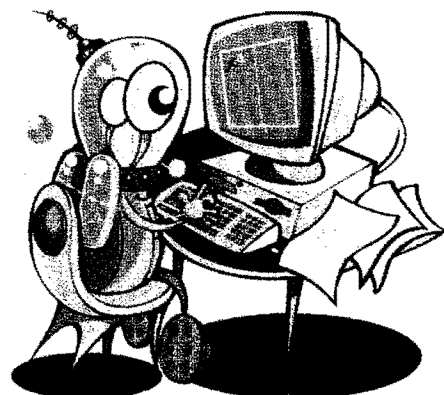
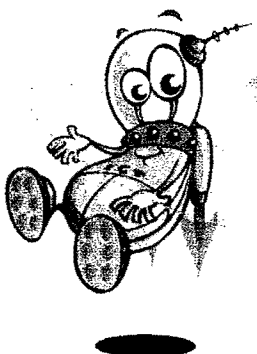
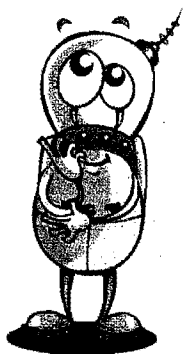
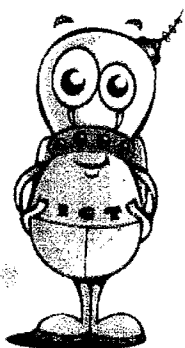


# Module 1

## Documents for a Purpose

### Learning Objectives

	Student is able to:	Pass/ Merit
1	Create and format text which is suitable for a particular purpose	P
2	Adjust properties to allow graphics or other objects to fit well within the document	P
3	Insert table into document	P
4	Use advanced formatting features	M
5	Use page formatting options	M
6	Adjust page formatting for a specific audience	M



**Who will be reading?**



- Before you format your text, think of the audiences who will be reading it.
    - How do you attract them to read?
    - How do you make your text more appealing to them?
  - Consider the audiences according to:
    - age
    - occupation
    - background
    - interest.
  - Vary the format by changing:
    - font styles
    - text sizes
    - colours
    - images.
- Children will like:
    - colourful text
    - little text
    - simple colour graphics or illustrations
    - easy-to-read font style
    - big text size.
  - Young people are more concerned with:
    - moderate font size
    - stylish font style
    - colours
    - attractive illustrations.
  - Older people may prefer:
    - big text size
    - simple font style
    - useful and relevant illustrations.

**Typing and formatting text**

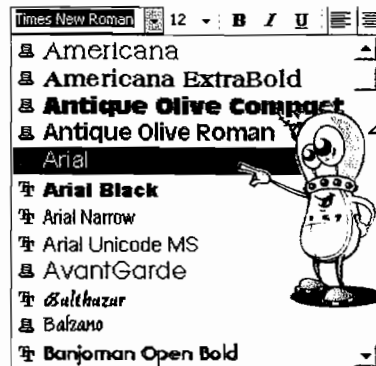
- Type the following article.
- Use spell-checker to check for spelling errors.
- Proofread to ensure the whole text is typed correctly.
- Save it in your folder as launchingcis.

Launching of Cambridge ICT Starters in Mukah, Sarawak, Malaysia. The Information and Communication Technology (ICT) programme at SK Dato Awang Udin in Mukah, Sarawak, Malaysia was launched by former Prime Minister Tun Dr Mahathir Mohamad on 10 April 2004. The ICT programme, which will witness the introduction of 'Cambridge ICT Starters' for students at the school, marks yet another important milestone for the spread of ICT education to rural schools, especially in the coastal belt. The ICT programme is a pilot project for Mukah and the coastal area, and is an extension of an earlier successful pilot project which was launched at SK Datu Pengiran Mohamad, Oya, another rural area, by Sarawak Chief Minister Pehin Sri Dr Haji Abdul Taib Mahmud in 2001. The ICT project, which involves the provision of Broadband Internet Access by Sacofa Sdn Bhd to Mukah and introduction of ICT education by Danawa Resources Sdn Bhd, will complement the Government's efforts in bridging the digital divide between the rural and urban areas and eradicating rural poverty. The digital divide, which has been acknowledged as a major factor which underpins the economics of isolation in rural areas, features prominently in Taib's agenda as an area of concern that must be resolved to facilitate the transformation process and enable the State to strive towards achieving the k-society status. Describing the ICT education project undertaken by Danawa Resources as an important enabler in promoting IT-assisted learning, the company's managing director, Kuintan Sepawi, said, "We like to consider our contribution from the private sector as one which is supportive of the Government's k-economy initiative, which seeks to move Malaysians away from physical resources towards knowledge-based resources." On the Cambridge ICT project, she said it highlighted the various critical components necessary in creating a sustainable ICT-focused education programme. "Besides having a proper syllabus, course contents and Internet access, ongoing training for the teaching staff will be carried out," said Kuintan, who stressed that firm commitment and support from the school management and education department was equally important.

## Changing font



- Open the file launchingcis.
- Find out what the default font of your word processor is.
- Highlight all the text by tapping  and  simultaneously.
- If the default font is Arial, then change the font of the text to Times New Roman; otherwise change the font of the whole passage to Arial.
- Arial or Times New Roman are two very common fonts that are easily accepted by most audiences.

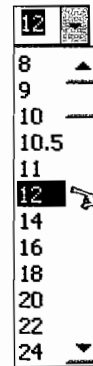
- You may wish to select a different font of your choice. However, whatever font you have chosen, make sure it is suitable for your audience.



Choose the font from the list.





## Changing font size

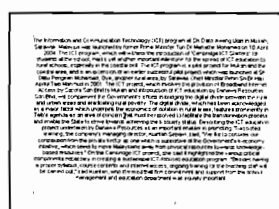
- Find out what the default font size of your word processor is.
- Highlight all the text by tapping  and  simultaneously.
- If the default font size is 12, change it to a bigger size of 14.
- Now try to change the font size to 16.
- Change the font size back to 12.
- Font size 12 is the most common font size and is most suitable for adults.
- Children and older audiences may prefer the bigger font size of 16 or even 18.



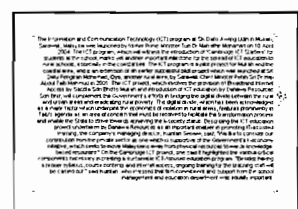
Choose the suitable font size here.

## Text alignment

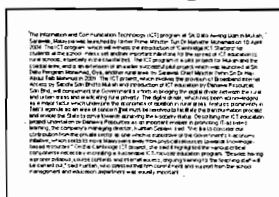
- Place the cursor anywhere in the text.
- Click , the text will be aligned at the centre.
- Titles are usually aligned at the centre.
- Click , the text will be left aligned.
- If the page width or column width is limited, left alignment is a better choice.
- Click , the text will be right aligned.
- Date and page number are commonly right aligned.
- Click , the text will be justified.
- Justified text looks neat and professional.



Centre aligned



Right aligned







Left aligned

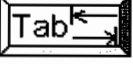


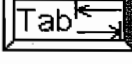



Justified

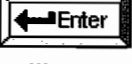


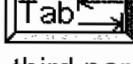

### Formatting the title


- First align all the text as Justify.
- The first line can be taken as the title of the story.
- Place the cursor at the end of the first line, to the right of the full stop.
- Tap  once to remove the full stop.
- Tap  twice to separate the title from the rest of the text.
- Place the cursor anywhere within the title.
- Click  to make the title centre aligned.
- Highlight the title.
- Click **B** to make the title **bold**.
- Click U to underline the title.
- Change the font size of the title to 14.
- Change the font style of the title to Century Gothic or any legible font.
- Change the font colour to red.
- Click  to save the file using the same filename.

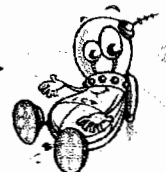
### Break the text into paragraphs.

- Highlight the whole text and change the font size of the body text to 12.
- The body text is too long and therefore difficult to read.
- We can break the text into a few paragraphs.
- Each paragraph should discuss one main point.
- Place the cursor on the left of the first word of the text: "The".
- You may tap  once to insert an indent to the first paragraph, but this is not necessary.
- Identify the third sentence: "The ICT programme is a pilot project..."
- Place the cursor on the left-hand side of the first word of the third sentence: "The".
- Tap  once.
- This breaks the third sentence from the second sentence.
- Tap  again.
- This will insert a blank line.
- Tap  to insert an indent for the second paragraph.
- Click  to save the file using the same filename.


### Another paragraph

- Identify the fourth sentence of the newly formed second paragraph: "Describing the ICT education project undertaken ..."
- Place the cursor to the left-hand side of the first word: "Describing".
- Tap  twice.
- This will create a new paragraph and insert a new line above the new paragraph.
- Tap  .
- This will remove the blank line if you have not typed anything on it.
- Tap  again to insert a blank line above the third paragraph.
- You may tap  to insert an indent for the third paragraph.
- Click  to save the file using the same filename.

Click  to preview what your document looks like.



## More formatting

- Locate and highlight the school name “SK Dato Awang Udin” in the first paragraph.
- Change the colour to deep blue.
- Locate the following names and change their colour to deep blue:
  - Tun Dr Mahathir Mohamad
  - Pehin Sri Dr Haji Abdul Taib Mahmud
  - Kuintan Sepawi
- Locate “Cambridge ICT Starters” in the first paragraph and change its colour to red.
- Click  to save the file using the same filename.


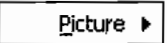
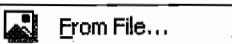

### Launching of Cambridge ICT Starters in Mukah, Sarawak, Malaysia

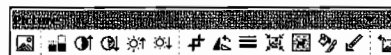
The Information and Communication Technology (ICT) program at SK Dato Awang Udin in Mukah, Sarawak, Malaysia was launched by former Prime Minister Tun Dr Mahathir Mohamad on 10 April 2004. The ICT program, which will witness the introduction of ‘Cambridge ICT Starters’ for students at the school, marks yet another important milestone for the spread of ICT education to rural schools, especially in the coastal belt.

The ICT program is a pilot project for Mukah and the coastal area, and is an extension of an earlier successful pilot project which was launched at SK Dato Pehin Sri Mahamad, Oya, another rural area, by Sarawak Chief Minister Pehin Sri Dr Haji Abdul Taib Mahmud in 2001. The ICT project, which involves the provision of Broadband Internet Access by Sapura Sdn Bhd to Mukah and introduction of ICT education by Dataway Resources Sdn Bhd, will complement the Government's efforts in bridging the digital divide between the rural and urban areas and eradicating rural poverty. The digital divide, which has been acknowledged as a major factor which impedes the economic development in rural areas, features prominently in Taib's agenda as an area of concern that must be resolved to facilitate the transformation process and enable the State to strive towards achieving the k-society status.

Describing the ICT education project undertaken by Dataway Resources as an important enabler in promoting IT-assisted learning, the company's managing director, Kuintan Sepawi said, “We like to consider our contribution from the private sector as one which is supportive of the Government's economic initiative, which seeks to move Malaysians away from physical resources to words, knowledge-based resources.” On the Cambridge ICT project, she said it highlighted the various critical components necessary in creating a sustainable ICT-based education program. “Besides having a proper syllabus, course contents and Internet access, ongoing training for the teaching staff will be carried out,” said Kuintan, who stressed that firm commitment and support from the school management and education department was equally important.

## Inserting images


- A relevant image often explains the meaning better than words.
- Click .
- Click .
- Click .
- Select the image drmahathir.jpg.
- The image will be inserted at the position of the cursor.
- You cannot move the image but you can resize it.
- Place the cursor at one of the four corners.
- The shape of the cursor changes to . Drag it inward to reduce or outward to enlarge the image.




Drag diagonally to enlarge or reduce the image.


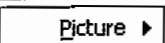
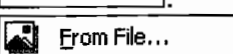



## Moving the image

- Click anywhere on the image.
- Once the image is selected, a picture toolbar is displayed.
- Click .
- Try out the different text-wrapping properties one by one to see the effect on the text around the image.
- Finally, choose square as the text-wrapping property.



- Notice that once a text-wrapping property is selected, the sizing handles change from small black squares to small white circles.
- Place the cursor anywhere inside the image.
- The shape of the cursor changes to .
- Drag to move the image to a new position.

## More images


- Click .
- Click .
- Click .
- Select the image oya.jpg.
- Resize, change text wrapping to square and place it somewhere in the second paragraph.
- Insert another image pic2.jpg, resize, change text wrapping to square and place it somewhere in the third paragraph.
- Click  to save the file using the same filename.
- Close the file.



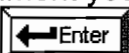

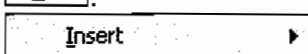
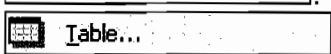
## World's Longest Bridge Spans

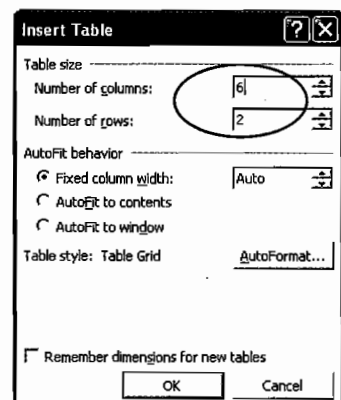
- Click  to start a new document.
- Type the following heading:  
World's Longest Bridge Spans
- Change the font style to Times New Roman.
- Change the text size to 24.
- Align the title at the centre .
- Add the following text:  
Longest Bridge Spans are categorised in the following tables according to the structural type of the main span. The "span" means the main span of a bridge = centre-to-centre distance of adjacent towers, pylons, piers or supports given

in metres. It does not mean the total length or overall length of multi-span bridges. Overall lengths are not included - only the longest spans. "Year" means the year of completion or intended completion if known.

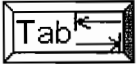
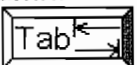
- Set the font style to Times New Roman.
- Set the font size to 12.
- Set the alignment to Justify .
- Save as longestbridge in your own file folder.

## Inserting a table


- Make sure the cursor is placed at the end of the document you have just typed.
- Tap  twice.
- Type 1. Suspension Bridges
- Click .
- Click .
- Click .
- In the dialogue box, change the number of columns to 6 and the number of rows to 2.



## Typing in the tables

- Type the heading of each column.
- Tap  to move to the next column.
- When you reach the last cell, tapping  again will insert a new row.

No.	Bridge	Span (m)	Location	Country	Year
-----	--------	----------	----------	---------	------

- Adjust the column width by dragging the border of the column.
- Place the cursor on the border until it changes its shape to .
- Hold down the mouse and drag to the left or to the right to resize the column.
- Complete the table so that it looks like the sample below:

### 1. Suspension Bridges

No.	Bridge	Span (m)	Location	Country	Year
1	Akashi-Kaikyo	1991	Kobe-Naruto	Japan	1998
2	Great Belt East	1624	Korsor	Denmark	1998
3	Runyang South	1490	Zhenjiang	China	2005
4	Humber	1410	Kingston upon Hull	UK	1981
5	Jiangyin	1385	Jiangsu	China	1999

## More tables


- Add the following two tables:

### 2. Cable-Stayed Bridges


No.	Bridge	Span (m)	Location	Country	Year
1	Sutong	1088	Suzhou-Nantong	China	2008
2	Stonecutters	1018	Hong Kong	China	2008
3	Tatara	890	Onomichi-Imabari	Japan	1999
4	Pont de Normandie	856	Le Havre	France	1995
5	Nanjing-3	648	Nanjing	China	2006

### 3. Steel Arch Bridges

No.	Bridge	Span (m)	Location	Country	Year
1	Lupu	550	Shanghai	China	2003
2	New River Gorge	518	Fayetteville, WV	USA	1977
3	Bayonne	504	New York, NY	USA	1931
4	Sydney Harbour	503	Sydney	Australia	1932
5	Chenab	461	Katra	India	2007

- Click  to save the file.

## Numbering

- Click  to start a new blank document.
- Type the following text:

Everybody likes to blow out the candles on the birthday cake during his or her birthday party. Candles create a special atmosphere on this special occasion. Candles are handy too when there is power failure.

Treat the candles well; they bring you joy and happiness. Treat them carelessly; they bring fire into your home!

Here are some guidelines on candle safety:

Double-check they're out when you do not need them.

Keep clothes and hair away from them.

Keep children and pets away.

Put them on a heat-resistant surface.

Put them in a proper holder.

Keep them away from inflammable materials like curtains.

Take care with votive or scented candles.

Use a snuffer or a spoon to put them out.







Don't put them under shelves.

Don't move them when they're burning.

Don't leave them burning while you are out.



Don't keep candles too close to each other.

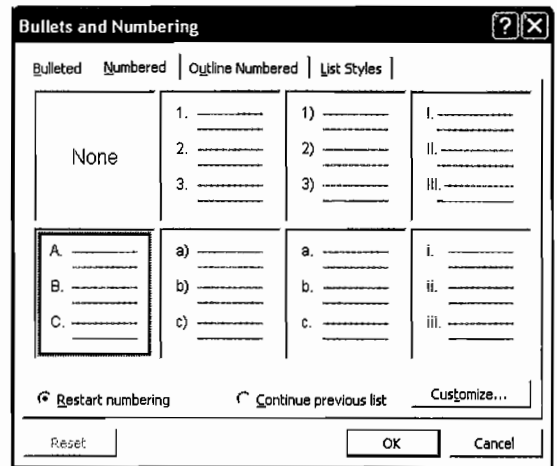
## Formatting

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Save the document you have just typed in your folder as: <b>candlesafety</b>.</li> <li>• Read through the document once again carefully to ensure that you did not miss out any words.</li> <li>• Use a spell-checker to check for spelling errors.</li> <li>• Click  to save the document again if you have made any changes.</li> <li>• Insert a title for the document: <b>CANDLE SAFETY</b>.</li> <li>• Set the font for the title to Arial.</li> <li>• Set the font size to 16.</li> <li>• Make the title <b>bold</b>.</li> <li>• Set the alignment to centre .</li> </ul> | <ul style="list-style-type: none"> <li>• Highlight the guidelines starting from "Double-check they're out when you do not need them." up to the end of the document.</li> <li>• Click .</li> <li>• Notice that all the guidelines will be numbered from 1 downwards.</li> <li>• Click  again.</li> <li>• The numbering has disappeared.</li> <li>• Now click .</li> <li>• Instead of numbering, the guidelines are listed one by one after a bullet.</li> <li>• Clicking  again will toggle off the bullets format.</li> </ul> |
|--|---|






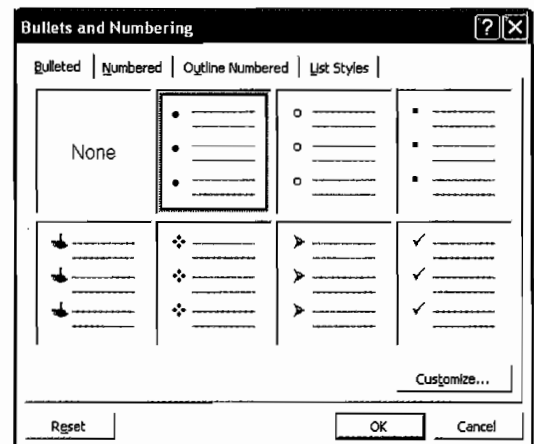
## Formatting numbering

- Instead of numbering the guidelines 1, 2, 3, 4, ... etc., we can change the format to A, B, C, ....
- Highlight the guidelines again.
- Click .
- Click at the menu **Format**.
- Click  **Bullets and Numbering...**
- Click **Numbered**.
- Click on one of the styles listed.
- Click **OK**.
- You can repeat the commands for a different style.
- Save your work before you proceed.



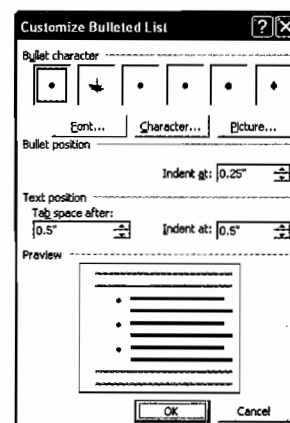
## Formatting bullets

- As with numbering, bullets can be changed.
- Highlight all the guidelines.
- Click .
- Click at the menu **Format**.
- Click  **Bullets and Numbering...**
- Click **Bulleted**.
- Click on the style of bullet of your choice.
- Click **OK**.
- Repeat the commands to see the effect of different bullets.
- Click  to save the document.



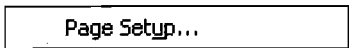


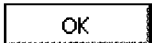





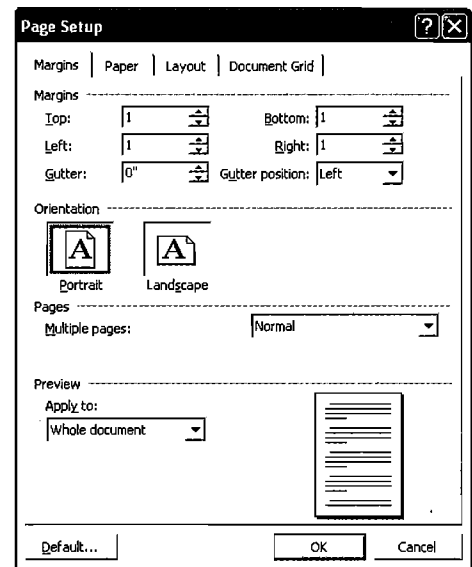
## Customised bullets

- Click **Customize...** to open a dialogue box.
- Click **Font...** and select a font of your choice.
- Click **Character...** and select a new character of your choice.
- Click **Picture...** if you prefer to have different pictures as bullets.
- You can try out the text position, indent, tab space and so on, as well.
- Click **OK** when you have finished.

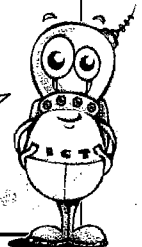
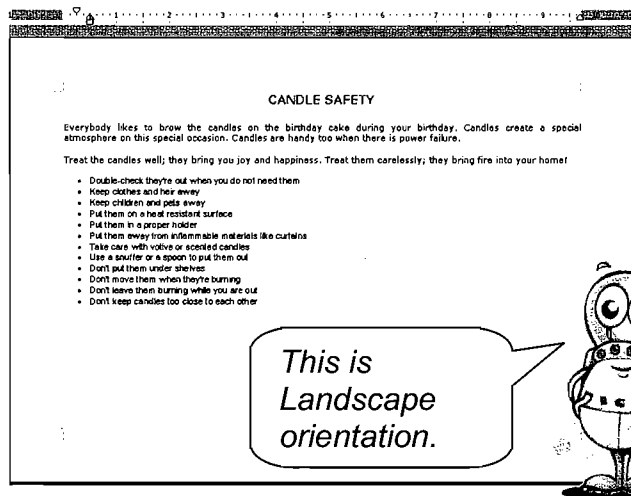


## Page orientation

- Click  to open the file candlesafety.
- Click .
- Click .
- Click .
- Under Orientation, click .
- Click .
- Click  to preview what Portrait orientation looks like.
- Repeat for Landscape orientation .
- Click  to preview what Landscape orientation looks like.



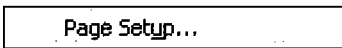





*This is Portrait orientation.*






*This is Landscape orientation.*

## Margins

- The blank space outside the printing area on a page is called the margin of the page.
- Click  to preview the page
- Click .
- Click .
- Click .
- Click  to increase or  to decrease the top, bottom, left or right margin.
- The bigger the number, the bigger the margin.
- Always do a preview before you print.

## Paper size

- You must also check the size of the paper that you will be using.
- Click .
- Click .
- Click .
- Check the paper size.
- If you are using single sheet, select the most common size, A4, from the list of sizes.
- If you are using continuous computer paper, select letter.
- Always do a preview before you print.

## Changing a document

- You are the secretary of the school History Club. You are asked to change an article so that it is suitable to be put on the History Club's bulletin board.
- Open the file tallestbuilding.
- Make the following changes to the heading (The Tallest Building in the World) of the document:
  - Text size: 16 point
  - Font: Tahoma
  - Font colour: blue
  - Alignment: centre
  - Insert a blank line after the heading.
- Make the following changes to the sub-heading (The ten tallest buildings in the world):
  - Text size: 14 point
  - Font style: Bold and Italic
  - Font: Arial
  - Font colour: green
  - Alignment: centre
  - Insert a blank line after the sub-heading.
- Make the following changes to the body text of the document:
  - Text size: 12 point
  - Font: Times New Roman.
- Insert a blank line after the line, "After the completion of Taipei 101, the other 10 tallest buildings in the world are:" and number the items under it.
- Insert bullet points to the 4 categories for measuring tall buildings so that they look like this:
  - height to the structural or architectural top
  - height to the highest occupied floor
  - height to the top of the roof
  - height to the top of the antenna.
- You may use a different shape for the bullets.
- Insert a blank line after the last paragraph.
- Insert the following text and table after the blank line:

In fact if we just measure them all from bottom to top, building or not, cables or not, public facilities or not, a ranking of the tallest structures in the world would look like this:

No.	Name	Place	Height
1.	KTHI TV-tower	Fargo (ND)	629 m
2.	KXJB-tower	Galesberg (ND)	628 m
3.	KZFX TV-tower	Lake Jackson (TX)	615 m
4.	WITN-tower	Grifton (NC)	610 m
5.	KATV-tower	Jefferson County (AR)	610 m

- Adjust the column width, if necessary.
- Save your file as tallestbuildingworld.

## Insert images

- With the help of your teacher, obtain images of Taipei 101, Kuala Lumpur Petronas and Sears Towers.
- Insert the image of Taipei 101 on the right-hand side of the first paragraph.
- Insert the image of Kuala Lumpur Petronas on the left-hand side under the third paragraph.
- Insert the image of Sears Tower to the right of the image of Petronas.
- Adjust the size of the images and the text-wrapping properties so that the whole document covers only 2 pages.
- Insert page numbers at the bottom right of the pages.
- Insert a header which has:
  - your name on the left-hand side
  - the date in the middle
  - your school name on the right-hand side
- Use Arial font of size 10 point for the header.
- Proofread the document and make corrections, if necessary.
- Save your document as tallestbuilding2.

## For the magazine

- Your document has been selected for the school magazine so that all the pupils can read it.
- You are now required to refine your document on page formatting, page orientation, colours, location of inserted images, font, font sizes and so on, to make it more appealing and appropriate for its audiences (your schoolmates).
- Save your work as tallestbuilding3.

## Self-evaluation

- Explain the choices you have made when creating your document, which make it suitable for its purpose.

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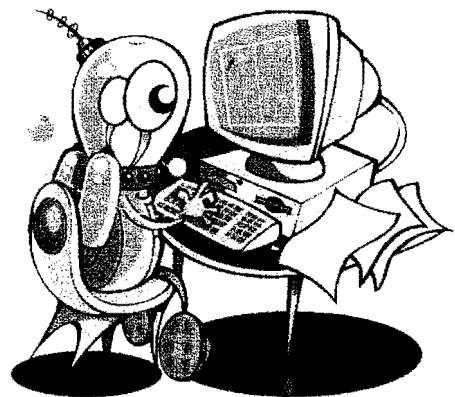
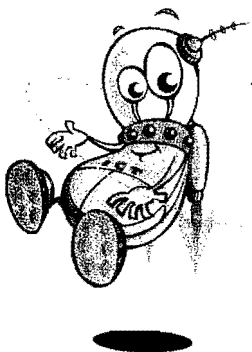
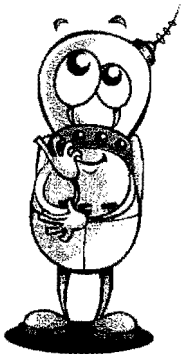
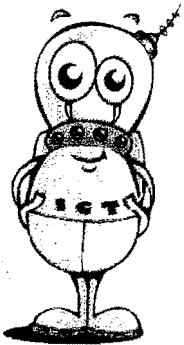
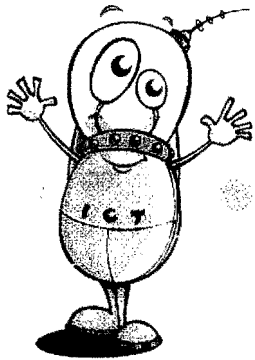
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## Module 2

# Multimedia for a Purpose

### Learning Objectives

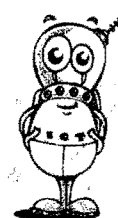
	Student is able to:	Pass/ Merit
1	Create a plan for a presentation	P
2	Recognise and select appropriate source materials	P
3	Incorporate transition and animation	P
4	Incorporate timings, audio and 'build' effects	M
5	Demonstrate a clear sense of audience and purpose	M



## Planning

- When you decide to do a presentation, you must start with planning.
- First, you need to identify the theme of your presentation.
- Next, you need to identify your audience.
- Plan your slides and think how your presentation can attract your specific audience.
- Gather resources like information, graphics and sound or music files.
- Select the relevant resources and organise them on a storyboard.
- You can apply your skills in word processing to prepare your storyboard or you can just scribble your ideas on a blank piece of paper.
- Your storyboard is then your master plan for the presentation.
- You must revise your master plan from time to time.

*You must know  
what your  
audiences want.*



## Storyboard

- Start MS Word with a blank page.
- Use the textbox feature to create 7 identical textboxes.
- Name the textboxes Slide 1 to Slide 7.
- For the exercise that you will go through in this module, let us prepare a presentation for the members of the School Science Club (the audience) on "World Record – the animal extreme" (the theme).
- As there are a few thousand world records, we will use a small category, "The largest", for the presentation.
- In the textbox for Slide 1, type the title as World Record - The Animal Extreme.
- On the second line, type The largest ....
- At this point, do not worry about the format.

Slide 1

World Record –  
The Animal Extreme

**The largest ...**

## Preparing the slides

- Open the file animalextreme.doc.
- For exercise purposes, the file has been prepared with some information on some world records.
- Identify the information that is relevant to the topic.
- Copy the information on the largest flying mammals.
- Paste it in the textbox for Slide 2.

Slide 2

Largest Flying Mammals – The Flying  
Foxes (family *Pteropodidae*)

- Live in Southeast Asia.
- Length of 45 cm (17.7 in).
- Wingspan - 1.7 m (5 ft 7 in)
- Weight - 1.6 kg (3.5 lb).

### Other slides

- Identify the next data that show “the largest ...”.
- Copy and paste the information to form Slide 3.
- Discard those data that are not relevant.
- Repeat the copy and paste process.
- There are all together 6 pieces of information that show the largest, and therefore there should be altogether 7 slides.
- Save your storyboard.
- To identify your file quickly later on, use your name as part of the filename: e.g. if your name is John, then save your work as john'ssbwr.

### Images and sound

- As part of the planning, identify the images that you would use in the presentation and write them down on the storyboard.
- You can insert 1 or more images.
- All the images selected must be relevant or related to the presentation.
- The illustration should help the audience to gain a better impression of the information presented.
- You can also identify a sound file to be played throughout the presentation to make the presentation even more interesting.

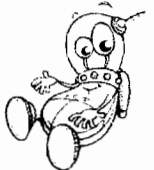
#### Slide 2

Largest Flying Mammals – The Flying Foxes (family *Pteropodidae*)



- Live in southeast Asia.
- Length of 45 cm (17.7 in).
- Wingspan - 1.7 m (5 ft 7 in).
- Weight - 1.6 kg (3.5 lb).

Graphics: flyingfox.jpg, flyingfox2.jpg, flyingfox3.jpg

*The filenames of the graphics need not be shown in the presentation.*



### Getting started


- Click  **start**
- Click  **All Programs**
- Click  **Microsoft PowerPoint**
- Click  **From Design Template** on the Task Pane on the right-hand side.
- Choose between a blank presentation and an appropriate design template.
- Since the theme is world records, we can perhaps use globe.pot.
- Click on the sample globe.pot on the Task Pane and the starting slide will be changed to the design selected.

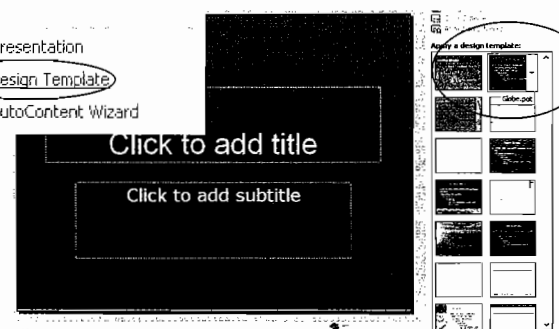
#### New Presentation

##### Open a presentation

worldrecord-animalextrême.ppt  
presentation2.ppt  
flagsandna.ppt  
flagsandnationalanthem.ppt  
morepresentations...

##### New

- Blank Presentation
-  **From Design Template**
- From AutoContent Wizard



## Title slide

- Create the first slide as the title slide.
- Click on the space marked "Click to add title".
- Type the title as **World Record - Animal Extreme**.
- Click **A** to increase or click **A** to decrease the font size so that the title stretches over only 1 line.
- Move the title to the top.
- Click on the space marked "Click to add subtitle".
- Type **The Largest ....**
- Adjust the font size.
- Add your name below the subtitle.

### World Record – Animal Extreme

## The second slide

- Insert a new slide.
- Click **Insert**.
- Click **New Slide Ctrl+M**.
- If you have created the storyboard using MS Word, you can copy the title and paste it into the box marked "Click to add title".
- You can click on it and type out the title.
- Check your spelling and resize the wordings.
- Change the colour of the title to yellow.

Click to add title

- Click to add text

## Completing the slide

- Click at the area marked "Click to add text" and complete the text as in your storyboard.
- Click **Insert**.
- Click **Picture**.
- Click **From File...**.
- Select the image that you think is relevant.
- Resize and move the image if necessary.
- You can insert more than 1 image.
- Save your presentation as **animalextrême**.

### Largest Flying Mammals – The Flying Foxes (family *Pteropodidae*)

- Live in Southeast Asia.
- Length of 45 cm (17.7 in).
- Wingspan - 1.7 m (5 ft 7 in).
- Weight - 1.6 kg (3.5 lb).





## The other slides

- Based on the storyboard you have created, complete the other 5 slides.
- The screen shots shown here are just examples.
- You are encouraged to rearrange the images or move the text.
- While designing the slides, you must always bear in mind who your target audience is.
- Save your work before you leave your computer.

### Largest Fish — The Whale Shark (*Rhincodon typus*)

- Plankton-feeding.
- Found in the warmer areas of the Atlantic, Pacific, and Indian Oceans.
- Length — 12.65 m (41 ft 6 in).



Slide 5

### Largest Bird — The Ostrich

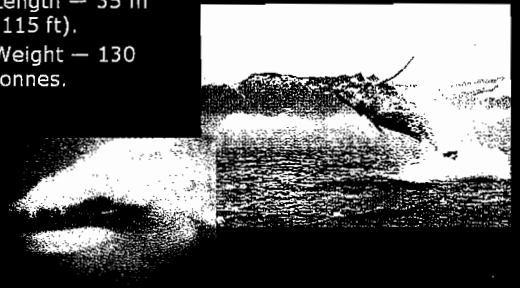
- Live in North African.
- Height — 2.75 m (9 ft).
- Weight — 156.5 kg (345 lb).
- Also the fastest bird on land — it can run up to 72 kmph (45 mph).
- It can't fly!



Slide 3

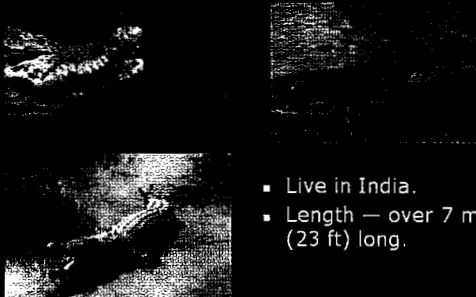
### Largest Mammal — The Blue Whale (*Balaenoptera musculus*)

- Length — 35 m (115 ft).
- Weight — 130 tonnes.



Slide 6

### Largest Reptile — the estuarine or saltwater crocodile (*Crocodylus porosus*)



- Live in India.
- Length — over 7 m (23 ft) long.

Slide 4

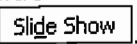

### Largest Insect — Acteon Beetle (*Megasoma acteon*)

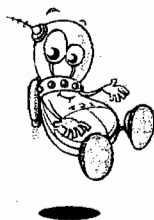
- Found in South America.
- Length — 3.5 in.
- Width — 5.1 cm (2 in).
- Thickness — 3.8 cm (1.5 in).





Slide 7


## Slide show

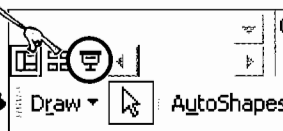
- Open the presentation animalextreme that you saved in the previous exercise.
- Make sure that you are looking at the first slide.
- Click  Slide Show.
- Click  View Show F5.
- Left-click your mouse anywhere on the screen to advance to the next slide.



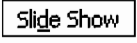


You can also tap the space bar,  or  to advance to the next slide.

Tap  or  to reverse to the previous slide.

You can click the  icon located at the bottom left corner to start the slide show too!



## Transition

- To advance the slides in a more attractive way, we can add in slide transition.
- Click  Slide Show.
- Click  Slide Transition...
- From the Task Pane, choose one of the transition methods by clicking at it once.
- If the AutoPreview was checked ☒ AutoPreview, you can preview as you click.
- Repeat the choosing of slide transition methods for all other slides.
- Go back to the first slide and click  to go through the presentation again.

### Slide Transition

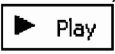

#### Apply to selected slides:

- No Transition
- Blinds Horizontal
- Blinds Vertical
- Box In
- Box Out**
- Checkerboard Across
- Checkerboard Down
- Comb Horizontal
- Comb Vertical
- Cover Down
- Cover Left
- Cover Right



Drag this up and down for more transition options.




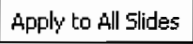
## Speed and sound


- For each slide transition, you can choose the speed: slow, medium or fast.
- You can also choose a sound effect.
- After you have made the choices, go back to the first slide and click  Play to have a preview of the effects.
- Click  to save the presentation.

### Modify transition

- Speed: Slow ▼
- Sound: [No Sound] ▼
- ☐ Loop until next sound

### Auto advance

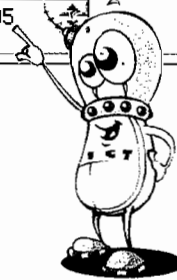
- At this point, you still need to advance to the next slide manually by clicking the mouse or by tapping the space bar,  or .
- You can produce an automated presentation whereby the slides will be advanced automatically after a specified period of time.
- Look for **Advance slide** under the Task Pane.
- Uncheck the option ☐ On mouse click.
- Check the option ☒ Automatically after.
- Click  repeatedly to increase the timing to 5 seconds.
- Click .

- Make sure you are viewing the first slide.
- Click  Slide Show to run the show.

#### Advance slide

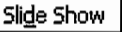





- ☐ On mouse click  
☒ Automatically after

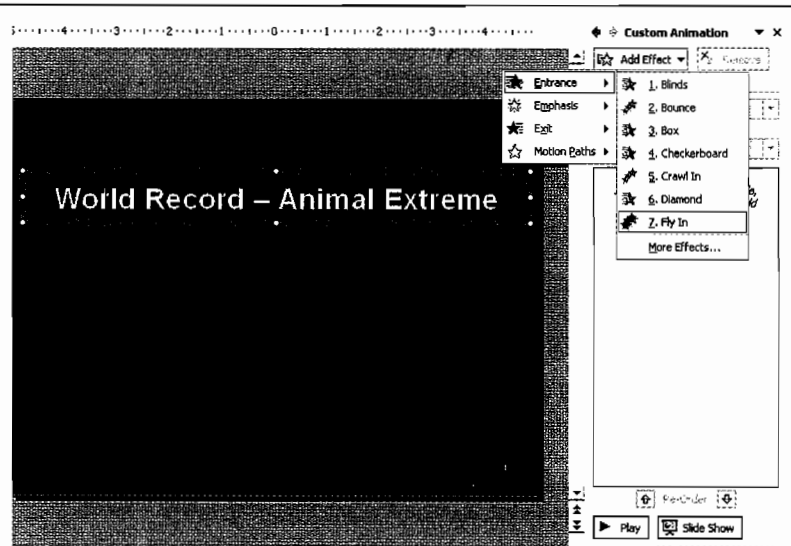
00:05





You can also type in the timing manually.

### Animation


- You can use animation to change the way in which the images or texts are displayed.
- Click .
- Click  Custom Animation...
- On Slide 1, click to select the title.
- Click  Add Effect.
- Select  Entrance.
- Choose  Fly In or any other effect.
- Click  Play to have a preview.



### Text animation

- Repeat the animation for the subtitle The Largest ....
- You can choose the same or a different entrance effect.
- Click  Play to have a preview.
- Try out other effects one by one so that you are familiar with each of them.
- Choose the one that you think your audience will like.
- Repeat for all the titles of the other 6 slides.
- Click  to save your work.

#### Do not use

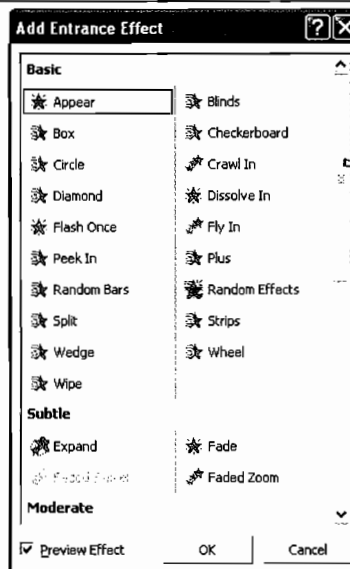
 Animation Schemes...

at this point. It has different implications and may affect the slide transitions that you set earlier.



## Graphic animation

- Select Slide 2.
- Click on one of the inserted graphics.
- Click **Slide Show**.
- Click **Custom Animation...**
- Click **Add Effect**
- Select **Entrance**
- Choose **More Effects...** to see more entrance effects.
- Click **Box** or any other effect.
- Click **Play** to have a preview.
- Repeat the process for other images.



Drag this slide bar down to see more effects.






## Re-order

- The numbering that appeared next to the title and the images show the order that the title and the images will appear.
- You can change the order.
- To swap the order 3 and 4, for example, click the third effect in the Task Pane.
- Click to move its order down.
- Clicking will put its order back.
- Now repeat the process of adding animation effects to all the images on all the other 6 slides.

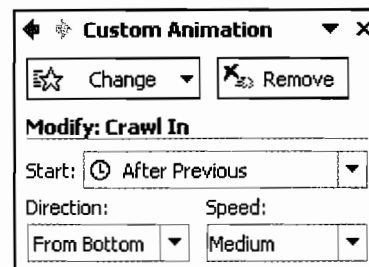
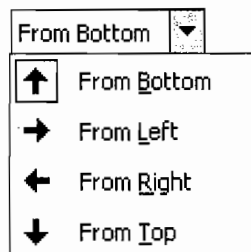
## Build effect



- The body texts that are already in the bullets format can be set to appear one by one.
- This is called the build effect.
- Follow the procedure above to reach and click **Add Effect**
- Select **Entrance**
- Select **5. Crawl In**
- You can also click **More Effects...** to select more effects.

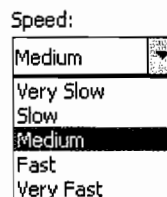
## Change setting

- Click  on the right of Start:  After Previous  and choose After Previous to ensure a smooth automated presentation.
- Click  on the right of Direction:  From Bottom to select a direction on entrance for the text from a list of directions:




Direction:




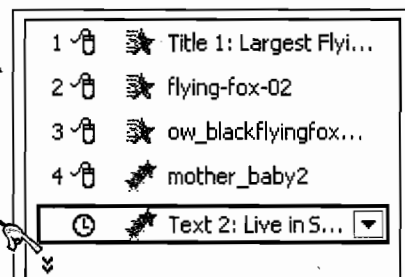
- Click  on the right of Speed:  Medium to choose a speed from the list.



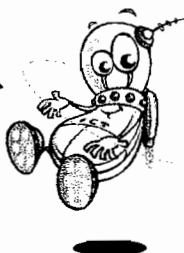
## The text contents


- Normally, the animation properties of the text are grouped under the first line.
- You can click  to expand its contents.
- You can then change the contents one by one, choosing a different direction or speed.
- You can click  to hide the contents.
- Click  to save your work before you proceed to set the animation of the texts of other slides.

Click  to expand the contents.



Although it is a thrill to watch the animations, overdoing it will only confuse the audience and distract their attention. Keep your work simple.



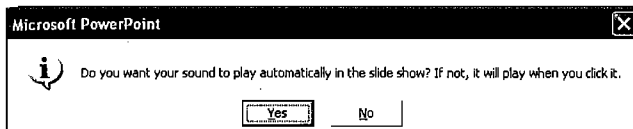
Click  to hide the contents.



## Inserting music

- Go to slide 1.
- Click **Insert**.
- Click **Movies and Sounds**.
- Click **Sound from File...**
- Choose the midi sound champions.
- Click **OK**.

*To ensure that the music can be played during the presentation, the music file must be kept in the folder where the presentation file is saved, whether it is saved on the hard disk, diskette, CD or any other storage devices.*



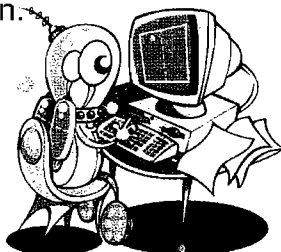
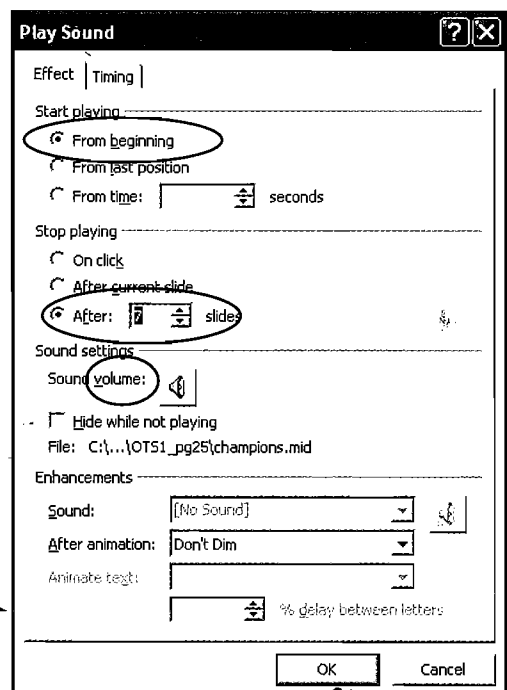
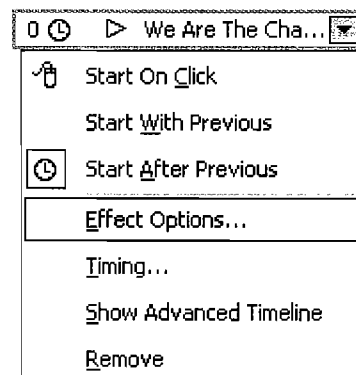
- Click **Yes** to allow the sound to play automatically in the slide show.



## Control how the music is played

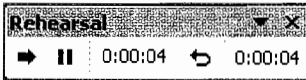
- In the Task Pane, click on the right-hand side of **champions.mid**.
- Click **Effect Options...**.
- This will open the Play Sound setting dialogue box.
- For this exercise, we want to play the music from the beginning until the end of the slide show.
- Select ☒ **From beginning** under **Start playing**.
- Select ☒ **After:** **slides** under **Stop playing** and type 7 as we have 7 slides.
- Click to activate the volume control and drag the handle up and down to control the volume of the music when it is played.
- Click **OK** to complete the setting.
- Save your work and test-run the slide show.
- If you need to make adjustments, remember to save your work again.

Volume

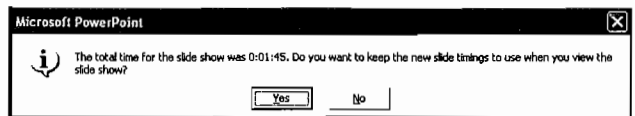


## Rehearse timings

- To ensure that the slide show created is suitable for the target audience, especially the timings, you can rehearse it.
- Click **Slide Show**.
- Click **Rehearse Timings**.
- The slide show will start automatically from the first slide with a timer.



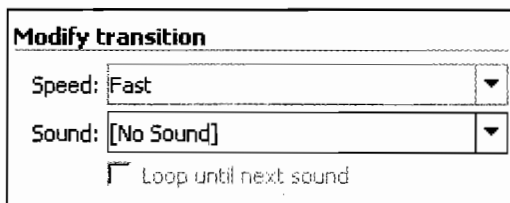
- Imagine that you are the target audience who will be watching the slide show.
- Tap the space bar whenever you think the title, the photos, the text or the whole slide should change to the next one.



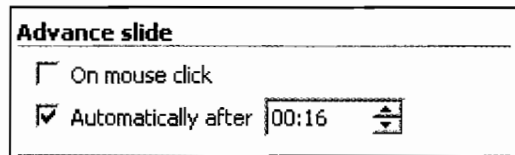
- When you reach the end of the slide show, a dialogue window telling the total time recorded will be displayed.
- Click **Yes** to accept and keep the recorded time.
- Save your work.
- Test-run the slide show.
- You can repeat the rehearsal or change the timing manually in the Task Pane.

## Slide transition timing

- You can still change the speed of slide transitions.
- In the Task Pane, under **Modify transition**, for speed, choose Fast, Medium or Slow.

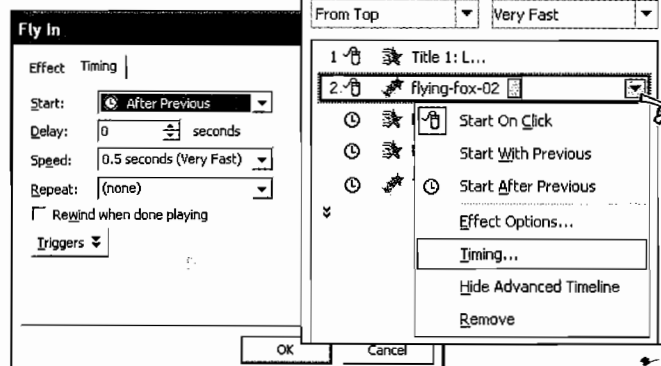


- You can also choose a sound effect.
- In the Task Pane, under **Advance slide**, you can change the time lapse before the next slide advances.






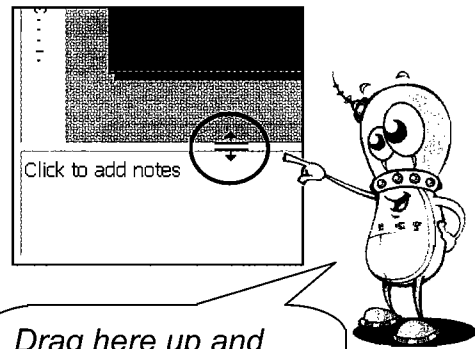
## Change the timing of animation effects

- In the Task Pane, select the effect to change.
- Click **Timing...**.
- Choose **After Previous** for **Start**. This will start the effect after the specified time in **Delay**.
- Specify 0 seconds in **Delay**. This will start the effect immediately.
- Choose a **Speed** from: 0.5s (Very Fast), 1.0s (Fast), 2.0s (Medium), 3.0s (Slow) or 5.0s (Very Slow).



### Resizing notes window

- For documentation purposes, you can add notes to each slide.
- You can note the transition and animation effects you have used for each slide.
- Bring your mouse pointer  to the bottom of the work place of the slide.
- Move it between the slide work place and the window labelled  Click to add notes until it changes its shape to .
- Hold the right button of the mouse and drag it up or down to resize the window for writing notes.



Drag here up and down to resize the textbox for writing notes.

### Writing notes

- For Slide 1, type the following notes:
  - Slide transition: *Blinds*
    - Direction: *Horizontal*
    - Speed: *Fast*
    - Advance slide: *Automatically after 2 seconds*
  - Animation used for the title: *Dissolve In*
    - Start: *Immediately*
    - Speed and duration of animation: *Very Fast (0.5s)*
  - Animation used for the subtitle: *Spiral In*
    - Speed and duration of animation: *Fast (1.0s)*
  - Music: *champions.mid*
    - Start: *From the beginning*
    - Stop: *After 7 slides (the last slide of the slide show)*

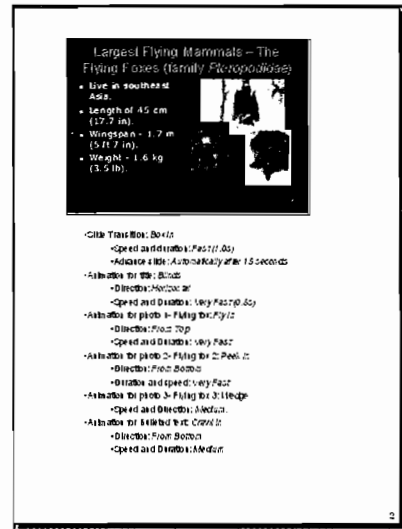
### Notes for Slide 2

- The following are examples of notes for Slide 2:
  - Slide transition: *Box In*
    - Speed and duration: *Fast (1.0s)*
    - Advance slide: *Automatically after 15 seconds*
  - Animation for title: *Blinds*
    - Direction: *Horizontal*
    - Speed and duration: *Very Fast (0.5s)*
  - Animation for photo 1 — flyingfox: *Fly In*
    - Direction: *From Top*
    - Speed and duration: *Very Fast*
  - Animation for photo 2 — flyingfox2: *Peek In*
    - Direction: *From Bottom*
    - Speed and duration: *Very Fast*
  - Animation for photo 3 — flyingfox3: *Wedge*
    - Speed and duration: *Medium*
  - Animation for bulleted text: *Crawl In*
    - Direction: *From Bottom*
    - Speed and duration: *Medium*
- Follow these examples and write similar notes for your own Slide 2 and the other 5 slides.



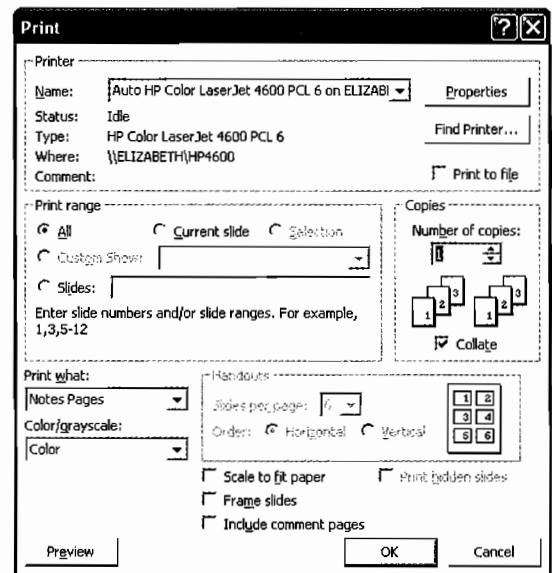
## Notes Page view

- You can also type the notes using Notes Page view.
- Click **View**.
- Click **Notes Page**.
- This will set the view to Notes Page.
- Type your notes in the textbox under the slide.
- You can also resize the slide and resize the textbox to allow for more notes.
- To return to normal view, click **View**.
- Click **Normal**.

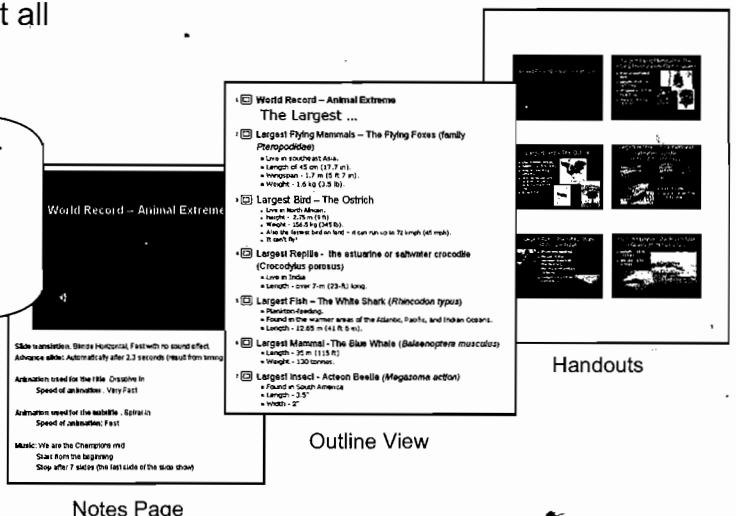


## Printing

- Click **File**.
- Click **Print...** (Ctrl+P).
- There are 4 types of printing: Slides, Handouts, Notes Pages and Outline View.
- Select the type of printing under **Print what:** and click **Preview** to preview how the pages will look before you start printing.
- Select Slides if you want to print each slide one by one.
- Select Handouts if you want to give out hard copies of the slides to your audience.
- You can select to print 1, 2, 3, 6 or 9 slides on a single page.
- Select Notes Pages if you want to print the notes slide by slide.
- Select Outline View if you want to print all the text without the images.



Make sure the printer is on-line before you click **OK** to start printing.



**Evaluation**

- After the completion of the slide show or presentation, view it as a slide show a few times with your target audience and think of ways in which you can improve your slide show.
- Write down as documentation why and how your slide show meets its purpose and how appealing it is to your target audience.
- The following questions will help you to evaluate your slide show. Write your answers in complete sentences. You can always write your own observations.

- Explain how the background chosen suits the title of the presentation.  
(Hints: Background used is globe; the title is about world records)

---

- Explain why the font styles and the font sizes used are suitable.  
(Hint: Are they simple and legible?)

---

- Explain how the use of music from the beginning to the end of the show helps to impress the target audience.  
(Hints: How suitable or related is the music chosen to the title of the presentation?  
How did the audience react to the use of music during the presentation?)

---

- Explain how the use of photos helped in the presentation.  
(Hints: Are they relevant and related to the topic presented? Are they informative?  
Have the inserted photos made the presentation more interesting?)

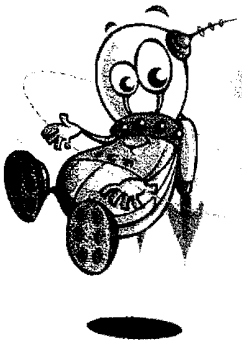
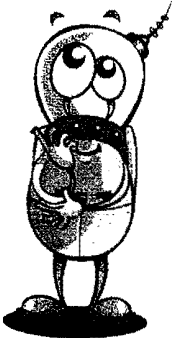
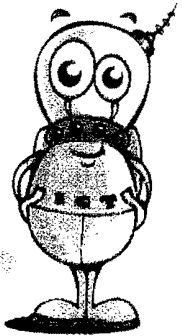
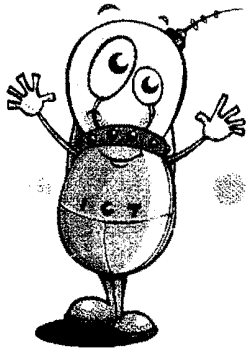
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- Explain the role played by the timings set.  
(Hints: Are the timings well set? Did the audience have sufficient time to finish reading? Were longer times allowed for longer text?)

---

- Explain how the use of transition of slides and animations helped in the presentation.  
(Hints: Did the use of transition of slides and animations make the presentation more interesting? Did the build effects on the texts make the text easier to comprehend or understand and make the presentation more impressive?)

---

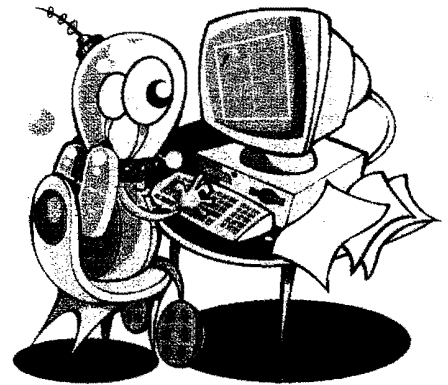


## Module 3

# Spreadsheets for a Purpose

### Learning Objectives

	Student is able to:	Pass/ Merit
1	Design a spreadsheet with a specific purpose	P
2	Create the spreadsheet	P
3	Test the spreadsheet	P
4	Modify the spreadsheet to make it suitable for its purpose	M
5	Evaluate the spreadsheet	M

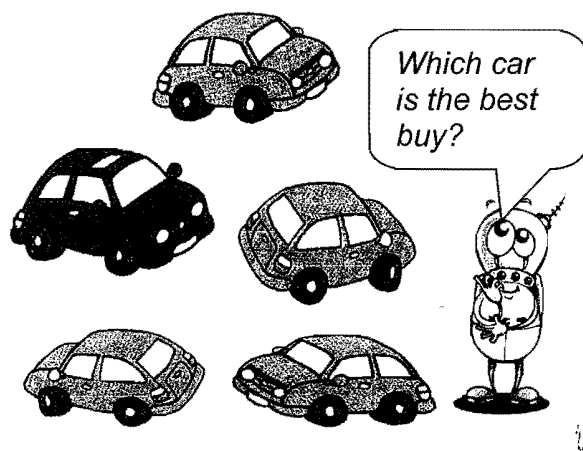


### 3.1 The purpose

Learning Objective: 1

## Sell and buy

- Mr Wilson wants to trade-in his present old car for a new car. He has three main criteria to consider:
  - The monthly loan repayment instalment must not be more than RM600 and the duration must not be more than 7 years.
  - The trade-in price must not be less than RM7,000.
  - The down-payment payable after deducting the trade-in price must not be more than RM5,000.
- He has 5 offers but cannot make up his mind.



## Designing a spreadsheet

- Design a spreadsheet to help Mr Wilson answer his question:
    - Which offer best suits his needs and criteria?
  - You will start by deciding the column headings of the spreadsheet.
  - The following are the main column headings that you need to consider:
    - (a) Offer (for Car A, B, C, D and E)
    - (b) Price of new car (for listing the price of the new car from the 5 offers)
    - (c) Minimum down-payment (as set by the offer)
    - (d) Trade-in price (for listing the trade-in price of the old car)
    - (e) Down-payment payable (the minimum down-payment minus the trade-in price)
    - (f) Principal loan (price for new car – down-payment)
    - (g) Duration of loan (in years)
    - (h) Rate of interest (in %)
    - (i) Total interest payable (duration of loan x rate of interest)
    - (j) Total amount payable (principal loan + total interest payable)
    - (k) Monthly instalment (total amount payable ÷ (duration of loan x 12))

## Labelling the spreadsheet

- Load
- A blank spreadsheet is displayed.
- Key in the column headings as shown.
- Save the spreadsheet in your own folder as wilson'scarloan-design.

	A	B	C	D	E	F	G	H	I	J	K
1	Which offer best suits Mr. Wilson's criteria and needs?										
2											
3	Offer	New Car Price	Minimum Down-payment	Trade-in Offered Price	Down-payment Payable	Principal Loan Amount	Duration (years)	Interest Rate (%)	Total Interest	Total Loan	Monthly Instalment
4	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
5	Car A										
6	Car B										
7	Car C										
8	Car D										
9	Car E										
10											






### The offers

- According to Mr Wilson, the 5 offers are as follows:
  - Offer 1 (Car A)
    - Price of new car: RM42,000
    - Trade-in price: RM9,000
    - Minimum down-payment: RM10,000
    - Duration of loan: 5 years
    - Interest rate: 3.35% per annum
  - Offer 2 (Car B)
    - Price of new car: RM48,350
    - Trade-in price: RM10,000
    - Minimum down-payment: RM10,000
    - Duration of loan: 6 years
    - Interest rate: 3.30% per annum
  - Offer 3 (Car C)
    - Price of new car: RM45,000
    - Trade-in price: RM8,000
    - Minimum down-payment: RM10,000
    - Duration of loan: 7 years
    - Interest rate: 3.20% per annum
  - Offer 4 (Car D)
    - Price of new car: RM32,000
    - Trade-in price: RM7,500
    - Minimum down-payment: RM15,000
    - Duration of loan: 4 years
    - Interest rate: 5.0% per annum
  - Offer 5 (Car E)
    - Price of new car: RM38,000
    - Trade-in price: RM6,500
    - Minimum down-payment: RM8,000
    - Duration of loan: 8 years
    - Interest rate: 3.0% per annum



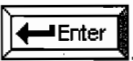
### Entering available data

- The worksheet designed has 11 columns but the information on the offers can only be used to fill up 6 of the columns, (a), (b), (c), (d), (g) and (h).
- Open the file wilson'scarloan-design.xls.
- Fill up the 6 columns (a), (b), (c), (d), (g) and (h) with the data from Mr Wilson.
- Check the data that you have entered carefully; adjust the column width, if necessary.
- Save your work as wilson'scarloan-data.xls.
- Discuss with your friends on how to use appropriate formulae to calculate the values for columns (e), (f), (i), (j) and (k).

### Keying-in the formulae




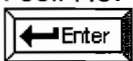
- Formula for Column (e): Down-payment Payable (e) = Minimum Down-payment (c) minus Trade-in Offered Price (d).
  - Click to select cell E5.
  - Tap .
  - Click cell C5.
  - Tap .
  - Click D5.
  - Tap .
  - Cell E5 will only display the value of the formula; the formula is displayed at the formula bar above the first row.
- You can also type the formula =C5-D5 directly into cell E5.
- You can repeat the process to key-in a similar formula for cells E6, E7, E8 and E9.
- To save time, you can use the Copy and Paste method:
  - Click cell E5.
  - Click .
  - Highlight cell E6 to cell E9.
  - Click .

### Columns (f) and (i)


- Formula for Column (f): Principal Loan Amount = New Car Price (b) – Minimum Down-payment (c).
  - Click to select cell F5.
  - Tap .
  - Click cell B5.
  - Tap .
  - Click cell C5.
  - Tap .
- Copy the formula to cells F6, F7, F8 and F9.


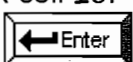
*MS Excel only recognises \* instead of x as multiplication.*



- Formula for Column (i): Total Interest = Principal Loan Amount (f) x Duration (g) x Interest Rate (h).
  - Click to select cell I5.
  - Tap .
  - Click cell F5.
  - Tap .
  - Click cell G5.
  - Tap .
  - Click cell H5.
  - Tap .
  - Copy the formula to cells I6, I7, I8 and I9.

### Column (j)

- Formula for Column (j): Total Loan = Principal Loan Amount (f) + Total Interest (i).
  - Click to select cell J5.
  - Tap .
  - Click cell F5.





- Tap .
- Click cell I5.
- Tap .
- Copy the formula to cells J6, J7, J8 and J9.

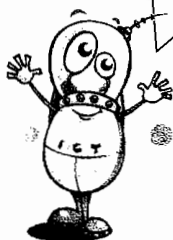
### Column (k)

- Column (k) is the most important column and the formula = J5/(G5\*12) must be entered with care.



- Click to select cell K5.

*MS Excel only recognizes / as the symbol for division.*

- Tap .
- Click cell J5.
- Tap .
- Click cell G5.
- Tap .
- Click cell G5.
- Tap .

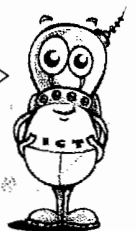


- Type 12.

- Tap .
- Tap .
- Copy the formula to cells K6, K7, K8 and K9.

- Save your spreadsheet as wilson'scarloan-data2.

*J5/(G5\*12) means cell J5 divided by the product of G5\*12. J5/G5\*12 means cell J5 divided by cell G5; the dividend is then multiplied by 12.*



### 3.3 Testing the formulae

Learning Objective: 3

#### Testing the formulae

- Are the formulae working correctly?
- Test the spreadsheet by changing some of the data.
- If the down-payment is the same as the new car price, there will be no loan, no interest and no instalment.
- Change the value of C5 to 42,000 (the same amount as B5): are all the values for cells F5, I5, J5 and K5 zero (or -, depending on the format used)?
- If your answer for the above is "yes", the formulae for columns (f), (i), (j) and (k) are working; if not, check to see that you have entered them correctly.
- To check the formula for column (e), change the value of the minimum down-payment (c) to 0.
- If the formula for column (e) was entered correctly, when there is no minimum down-payment (c), the down-payment payable (e) should show a negative value. The value is the same as the trade-in offered price, column (d).

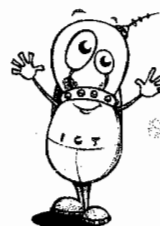
	A	B	C	D	E	F	G	H	I	J	K
1	Which offer best suits Mr Wilson's criteria and needs?										
2											
3	Offer	New Car Price	Minimum Down-payment	Trade-in Offered Price	Down-payment Payable	Principal Loan Amount	Duration (years)	Interest Rate (%)	Total Interest	Total Loan	Monthly Instalment
4	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
5	Car A	42,000.00	42,000.00	9,000.00	33,000.00	-	5	3.35%	-	-	-

Change the value of (c) to the value of (b), then the value of (f), (i), (j) and (k) will become 0 or -.



	A	B	C	D	E	F	G	H	I	J	K
1	Which offer best suits Mr Wilson's criteria and needs?										
2											
3	Offer	New Car Price	Minimum Down-payment	Trade-in Offered Price	Down-payment Payable	Principal Loan Amount	Duration (years)	Interest Rate (%)	Total Interest	Total Loan	Monthly Instalment
4	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
5	Car A	42,000.00	-	9,000.00	(9,000.00)	42,000.00	5	3.35%	7,035.00	49,035.00	817.25

Change the value of (c) to 0, then the value of (e) will be the negative value of (d).



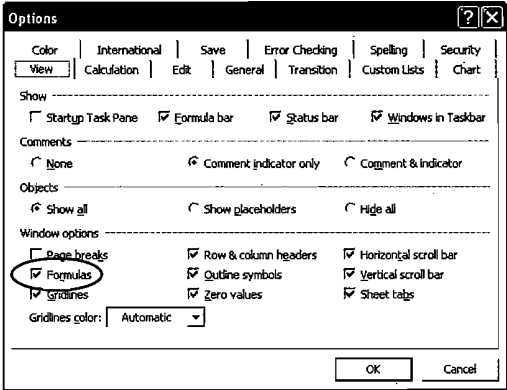
### 3.4 Displaying formulae

Learning Objectives: 3, 4

#### Displaying the formulae

- Click **Tools**.
- Click **Options...**.
- Click **View**.
- Check the option for ☒ **Formulas**.
- Click **OK**.
- The worksheet is displayed with all the formulae instead of values in the cells where formulae were entered.
- Check the formulae entered.
- If any mistakes are found, correct the mistakes.
- Uncheck ☐ **Formulas** to view the values again.
- Save the file under the same filename wilson'scarloan-data2.

- Repeat the process to display the formulae again.
- Adjust the column width to fit the content of each column.
- Save the spreadsheet as wilson'scarloan-formulae.



	A	B	C	D	E	F	G	H	I	J	K
1	Which offer best suits Mr Wilson's criteria and needs?										
2											
3	Offer	New Car Price	Minimum Down-payment	Trade-in Offered Price	Down-payment Payable	Principal Loan Amount	Duration (years)	Interest Rate (%)	Total Interest	Total Loan	Monthly Instalment
4	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
5	Car A	42000	10000	9000	=C5-D5	=B5-C5	5	0.0335	=F5*G5*H5	=F5+I5	=J5/(G5*12)
6	Car B	48350	10000	10000	=C6-D6	=B6-C6	6	0.033	=F6*G6*H6	=F6+I6	=J6/(G6*12)
7	Car C	45000	10000	8000	=C7-D7	=B7-C7	7	0.032	=F7*G7*H7	=F7+I7	=J7/(G7*12)
8	Car D	32000	15000	7500	=C8-D8	=B8-C8	4	0.05	=F8*G8*H8	=F8+I8	=J8/(G8*12)
9	Car E	38000	8000	6500	=C9-D9	=B9-C9	8	0.03	=F9*G9*H9	=F9+I9	=J9/(G9*12)

#### Interpreting the findings



- Based on the calculation, the monthly instalments are as follow:
  - Car A – RM622.67
  - Car B – RM638.10
  - Car C – RM510.00
  - Car D – RM425.00
  - Car E – RM387.50
- Only Cars C, D and E meet Mr Wilson's first criterion that the monthly instalment should not be more than RM600.
- Car E cannot be considered because its trade-in price offered, RM6,500 is less than Mr Wilson's request of RM7,000.
- Car D seems to be a good choice but the down-payment payable of RM7,500 is over the limit set by Mr Wilson.
- It is, therefore, obvious that the only offer that best answers the question:  
Which offer best suits his needs and criteria?  
is Car C.

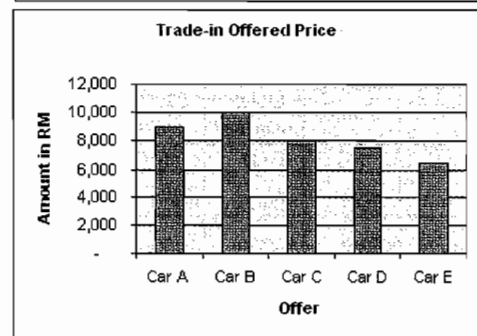
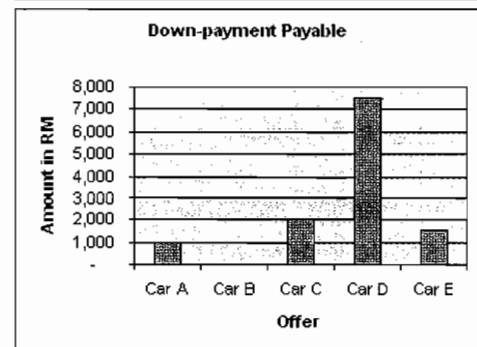
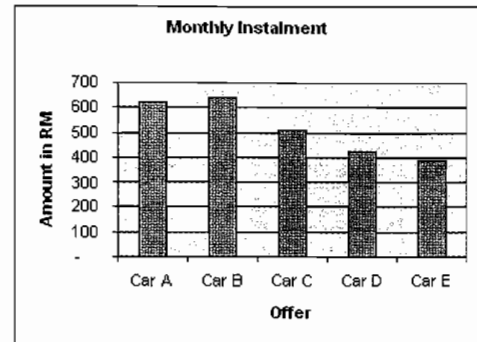


## 3.5 Graphical presentation

Learning Objectives: 2, 3

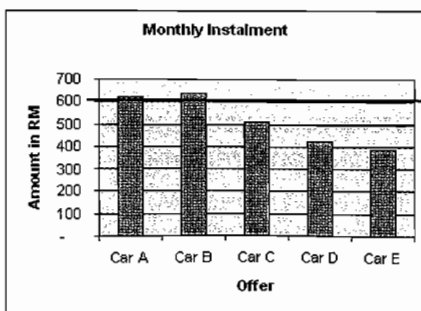
### A different presentation

- To present the findings in a more friendly and more convincing way, you can show the results by using a column chart.
- Open the file wilson'scarloan-data2.xls.
- Highlight cells A5 to A9.
- Hold down the  key.
- Highlight cells K5 to K9.
- Click .
- Select the Column graph.
- Enter the following labels:
  - Title: Monthly Instalment
  - Category (X) axis: Offer
  - Value (Y) axis: Amount in RM
- Place the completed chart under the data table.
- Draw another two column charts with appropriate titles and labels for Down-payment Payable and Trade-in Offered Price.
- Place the completed charts below the data table.

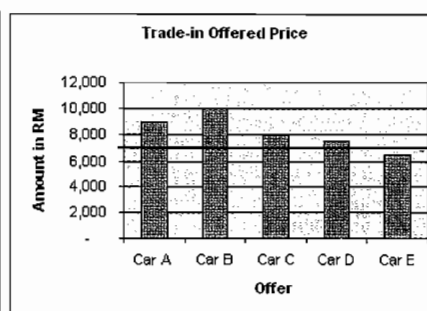


### Improving the graphs

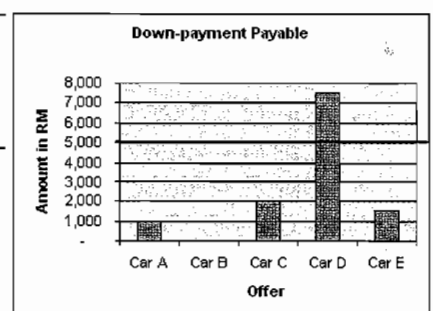
- The graphs presented above may not show clearly the right choice that meets Mr Wilson's need.
- You can further improve the graphs by drawing a line to indicate Mr Wilson's criterion.
- The notes below the graphs should help to indicate clearly the right choice.



Only C, D & E meet the requirement of <RM600



E is below the minimum trade-in offered price of RM7,000



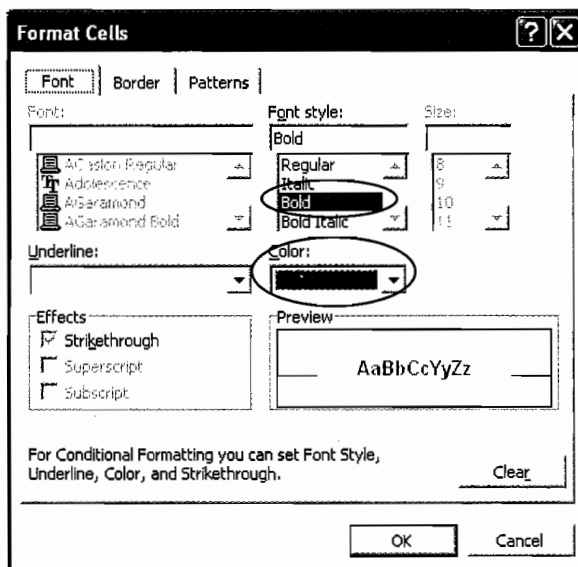
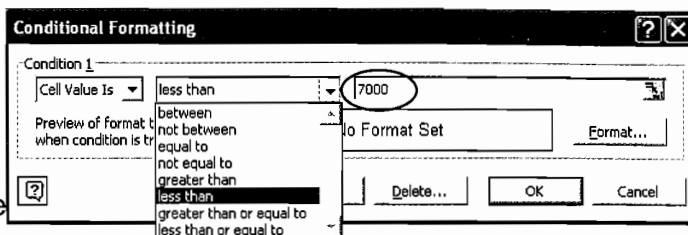
Down-payment payable for D is too high

## 3.6 Conditional formatting

Learning Objective: 3

### Conditional formatting

- The spreadsheet can be further enhanced by using conditional formatting.
- For Column (d), the trade-in price offered ought to be above RM7,000.
- Set the format so that the figure will be in red once it is below 7,000.
- Click **Format**.
- Click **Conditional Formatting...**
- In the second column, select **less than**.
- In the third column, type 7000.
- Click **Format...**
- Select red for **Color**.
- Select **Bold** for **Font style**.
- Click **OK**.
- Click **OK** again.
- Cell D9 should now be displayed in red.



### Columns (e) and (k)

- Repeat the conditional formatting for Column (e) where down-payment payable should not be more than RM5,000.
- Repeat the conditional formatting for Column (k) where the monthly instalment should not be more than RM600.
- Once Mr Wilson's three criteria are indicated by conditional formatting, it is very obvious that Car C is the only offer that meets Mr Wilson's need.

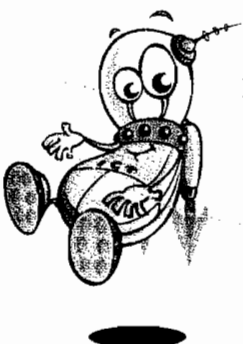
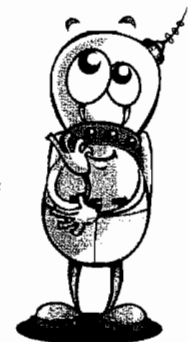
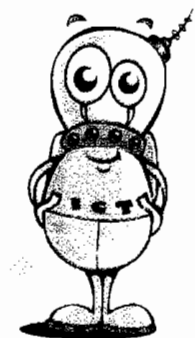
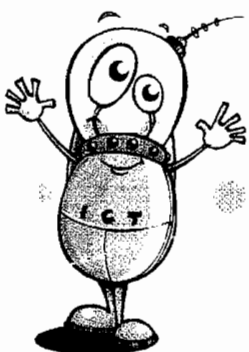
	A	B	C	D	E	F	G	H	I	J	K
1	Which offer best suits Mr Wilson's criteria and needs?										
2											
3	Offer	New Car price	Minimum Down-payment	Trade-in Offered Price	Down-payment Payable	Principal Loan Amount	Duration (years)	Interest Rate (%)	Total Interest	Total Loan	Monthly Instalment
4	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
5	Car A	42,000.00	10,000.00	9,000.00	1,000.00	32,000.00	5	3.35%	5,360.00	37,360.00	622.67
6	Car B	48,350.00	10,000.00	10,000.00	-	38,350.00	6	3.30%	7,593.30	45,943.30	638.10
7	Car C	45,000.00	10,000.00	8,000.00	2,000.00	35,000.00	7	3.20%	7,840.00	42,840.00	510.00
8	Car D	32,000.00	15,000.00	7,500.00	7,500.00	17,000.00	4	5.00%	3,400.00	20,400.00	425.00
9	Car E	38,000.00	8,000.00	6,500.00	1,500.00	30,000.00	8	3.00%	7,200.00	37,200.00	387.50

**More challenge**

- Mr Wilson prefers Car A if only the monthly instalment can be reduced to less than RM600!
  - Mr Wilson is willing to pay more down-payment for Car A as long as the down-payment payable is less than RM5,000!
  - Based on Mr Wilson's request, what is the down-payment payable, to the nearest RM100, that Mr Wilson has to pay?
  - Can you use the same spreadsheet to help Mr Wilson?
  - Yes! For Column (c), the minimum down-payment in cell C5, change the value from 10,000 to 11,000.
  - Check the value in Column (k), the monthly instalment.
  - Does the value in cell K5 decrease to below 600?
  - If not, increase the value for C5 to 11,100, 11,200, 11,300, ... until the value of K5 decreases to below 600.
  - Write down the smallest value for C5 that helps to solve Mr Wilson's request:
- 
- Save the spreadsheet as wilson'scar-a.xls.

**Evaluation**

- Does the spreadsheet help to solve Mr Wilson's need?
  - Yes! The spreadsheet has shown Mr Wilson clearly that the offer that best suits his criteria is \_\_\_\_\_.
  - The spreadsheet can also be used to show Mr Wilson that by increasing the down-payment to RM\_\_\_\_\_, he can keep the instalment for Car A to below RM600.
- What has been done to improve the spreadsheet so that the findings are clear?
  - The solution was presented using graphs.
  - The graphs were further improved by a red line that indicated the criteria.
  - The spreadsheet was also improved by the conditional formatting.
- Suggest other ways that may help to improve the spreadsheet so that it can meet its purpose.
  - Use colours to highlight the row that shows the solution.
  - Sort Column (k) – Monthly Instalment.
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

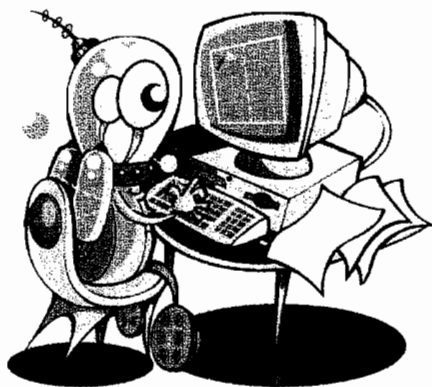


## Module 4

# Databases for a Purpose

### Learning Objectives

	Student is able to:	Pass/ Merit
1	Identify a purpose for a database	P
2	Design, create and develop a database for a specific purpose	P
3	Utilise different field types	P
4	Test database	M
5	Demonstrate an awareness of data security	M
6	Transfer data between applications	M



Designing databases

- A school computer club wants to collect data on the usage of the Internet among its members. You are asked to design a database to keep the data and to retrieve relevant information from time to time.
- The data collected will be kept confidential and only the main users, the Chairman, the Secretary and the Treasurer are allowed access.
- From the database collected, they would like to know:
  - the highest usage in hours per day
  - boys using dial-up connection
  - girls accessing the Internet for more than 3 hours.
- Discuss with your friends the key fields that are required and design a simple data entry form to be distributed to the members of the school computer club.
- The following are some examples of key fields:
  - Member ID
  - Name
  - Sex
  - Age
  - Type of connection to Internet (dial-up or broadband)
  - Average daily usage in hours
  - Date first subscribed to ISP.

Data entry form

- Design a simple data entry form to be distributed to the members to collect data from them.

Computer Club  
Sri Mawar Primary School  
Survey on Internet Usage at Home

a. Member ID: \_\_\_\_\_

b. Name: \_\_\_\_\_

c. Sex: \_\_\_\_ (Write M for Male and F for Female)

d. Age: \_\_\_\_\_

e. Type of connection to Internet: \_\_\_\_ (Write D for Dial-up, B for Broadband, and O for Other)

f. Average daily usage: \_\_\_\_\_ hours

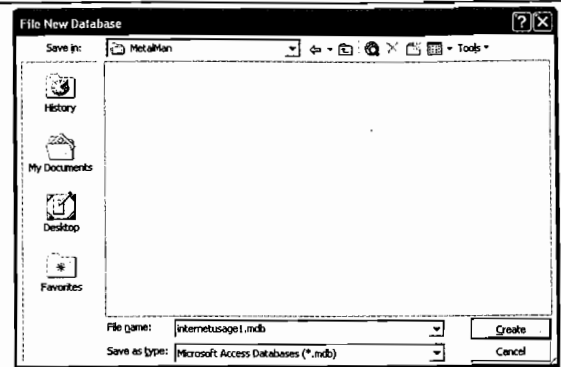
g. Date first subscribed to ISP: \_\_\_\_/\_\_\_\_/\_\_\_\_ (DD/MM/YYYY)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

### Data structure

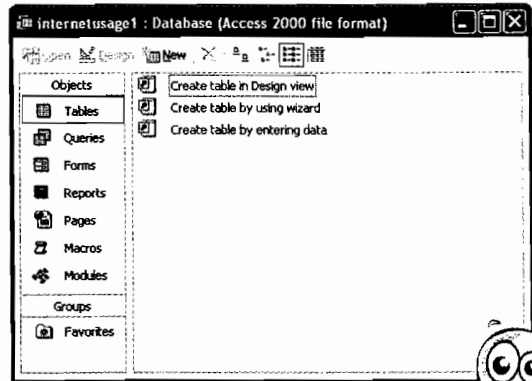
- Click start.
- Click Microsoft Access.
- Click .
- Click Blank Database in the Task Pane.
- Select your own directory or folder.
- Type internetusage1 as the filename.
- Click Create to create the database.



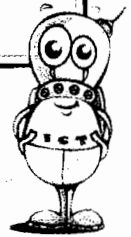
### Creating a table

- Under Objects, select Tables.
- Select Create table in Design view.
- Set up the table with the following details/options.

File Name	Data Type	Field Size
MemberID	Text	3
Name	Text	50
Sex	Text	1
Age	Number	Long Integer
Connection	Text	1
Usage	Number	Decimal
Date Subscribed	Date/Time	-

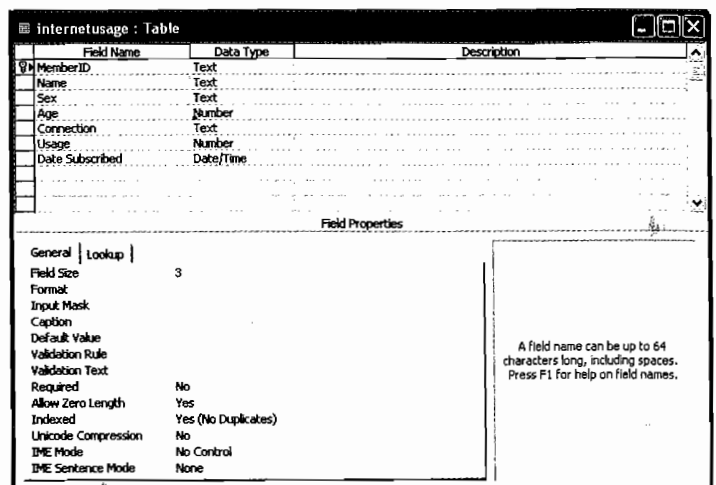


For the field Usage, set the scale to 1 and the decimal places to 1.



### Data type

- The data type determines the kind of values that users can store in the field.
  - Text – Text or combination of text and numbers, including numbers that do not require calculation.
  - Memo – Lengthy text or combinations of text and numbers.
  - Number – Numeric data used in calculations.
  - Date/Time – Date and time values.
  - Currency – Currency values and numeric data used in calculations.





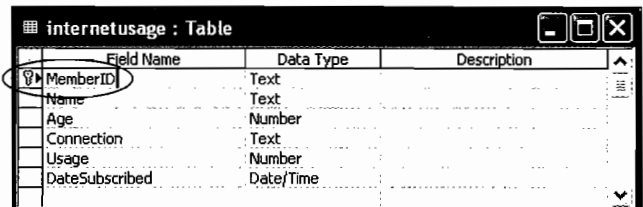
## 4.3 Primary key

Learning Objective: 2

### Primary key


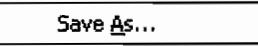
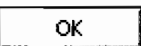
- A good and effective database should include a field or set of fields that uniquely identifies each record stored in the table. This information is called the primary key of the table. Once you set a primary key for a table, Access will prevent any duplicate or null values from being entered in the primary key fields.

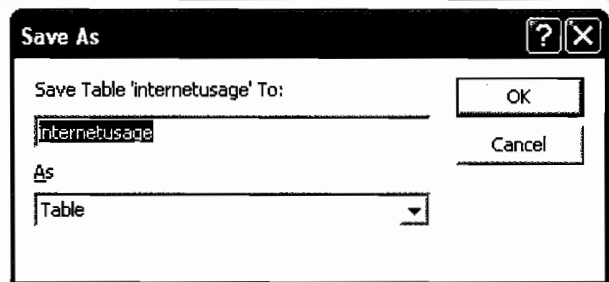
- Select the field MemberID and click  at the menu toolbar.
- A small key icon  will appear, indicating that the field has been set as the primary key.



Field Name	Data Type	Description
MemberID	Text	
Name	Text	
Age	Number	
Connection	Text	
Usage	Number	
DateSubscribed	Date/Time	

### Saving the table

- Click .
- Click .
- Save the table as internetusage.
- Click .





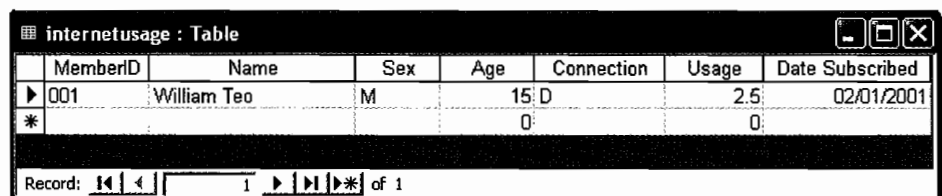
Save As

Save Table 'internetusage' To:

As

### Entering data

- Click to select  Tables.
- Click .
- Key-in the given data.



MemberID	Name	Sex	Age	Connection	Usage	Date Subscribed
001	William Teo	M	15	D	2.5	02/01/2001

Record: 1 of 1

- To ensure data consistency, you will only enter Sex as M or F and enter connection as B for Broadband, D for Dial-up and O for Other.
- The format of data entered must be consistent. Dial-up is considered different from Dial up; Broad Band differs from Broadband.

MemberID: 001  
Name: William Teo  
Sex: M  
Age: 15  
Connection: D  
Usage: 2.5 hrs  
Date Subscribed: 02/01/2001

MemberID: 002  
Name: Phua Chu Meng  
Sex: M  
Age: 16  
Connection: B  
Usage: 5 hrs  
Date Subscribed: 01/07/2001

**Records 3 to 12**

MemberID: 003  
Name: Elizabeth Goh  
Sex: F  
Age: 13  
Connection: B  
Usage: 8 hrs  
Date Subscribed: 15/02/2005

MemberID: 008  
Name: Limalawati Hassan  
Sex: F  
Age: 16  
Connection: D  
Usage: 2 hrs  
Date Subscribed: 03/08/1998

MemberID: 004  
Name: Mohad. Aziz  
Sex: M  
Age: 17  
Connection: D  
Usage: 1 hrs  
Date Subscribed: 31/12/2003

MemberID: 009  
Name: Bruce Lee  
Sex: M  
Age: 17  
Connection: B  
Usage: 8 hrs  
Date Subscribed: 01/03/2005

MemberID: 005  
Name: Mary Peter  
Sex: F  
Age: 16  
Connection: D  
Usage: 4 hrs  
Date Subscribed: 07/05/2000

MemberID: 010  
Name: Jong Ah Lai  
Sex: M  
Age: 14  
Connection: B  
Usage: 8 hrs  
Date Subscribed: 15/06/2004

MemberID: 006  
Name: Fatimah Ali  
Sex: F  
Age: 12  
Connection: B  
Usage: 5 hrs  
Date Subscribed: 15/12/2004

MemberID: 011  
Name: Betty Victoria  
Sex: F  
Age: 15  
Connection: B  
Usage: 7 hrs  
Date Subscribed: 18/11/2004

MemberID: 007  
Name: Siti Noraliza  
Sex: F  
Age: 15  
Connection: D  
Usage: 5 hrs  
Date Subscribed: 01/02/1999

MemberID: 012  
Name: Henry Joseph  
Sex: M  
Age: 16  
Connection: B  
Usage: 6.5 hrs  
Date Subscribed: 19/10/2004



## Records 13, 14 and 15

MemberID: 013

Name: Boniface David

Sex: M

Age: 16

Connection: D

Usage: 1 hrs

Date Subscribed: 15/09/2000

MemberID: 014

Name: Anthony Yap

Sex: M

Age: 12

Connection: B

Usage: 6 hrs

Date Subscribed: 08/08/2004

MemberID: 015

Name: Lai Fatt Cai

Sex: M


Age: 15

Connection: B

Usage: 6 hrs

Date Subscribed: 05/12/2004

## Retrieve information


- Supply the information required when you were first asked to set up the database.
- The first information:  
The highest usage in hours per day.
- This information can be retrieved easily.
- Open the table.
- Click any cell in the column Usage.
- Click  to sort the data in descending order.
- After sorting, the number that appears at the top indicates the highest usage in hours, that is, 8 hours.

internetusage : Table

MemberID	Name	Sex	Age	Connection	Usage	Date Subscribed
010	Jong Ah Lai	M	14	B	8	15/06/2004
009	Bruce Lee	M	17	B	8	01/03/2005
003	Elizabeth Goh	F	13	B	8	15/02/2005
011	Betty Victoria	F	15	B	7	18/11/2004
012	Henry Joseph	M	16	B	6.5	19/10/2004
015	Lai Fatt Cai	M	15	B	6	05/12/2004
014	Anthony Yap	M	12	B	6	08/08/2004
007	Siti Noraliza	F	15	D	5	01/02/1999
006	Fatimah Ali	F	12	B	5	15/12/2004
002	Phua Chu Meng	M	16	B	5	01/07/2001
005	Mary Peter	F	16	D	4	07/05/2000
001	William Teo	M	15	D	2.5	02/01/2001
008	Umalawati Hassan	F	16	D	2	03/08/1998
013	Boniface David	M	16	D	1	15/09/2000
004	Mohd. Aziz	M	17	D	1	31/12/2003

Records: 14 of 15

## Using a filter

- You can create a filter to find the information on:  
Boys that use dial-up connection.
- Click **Records**.
- Click **Filter**.
- Click **Filter By Form**.
- Select M in the column Sex.
- Select D in the column Connection.
- Click  to apply the filter.

internetusage : Table





MemberID	Name	Sex	Age	Connection	Usage	Date Subscribed
001	William Teo	M	15	D	2.5	02/01/2001
013	Boniface David	M	16	D	1	15/09/2000
004	Mohd. Aziz	M	17	D	1	31/12/2003

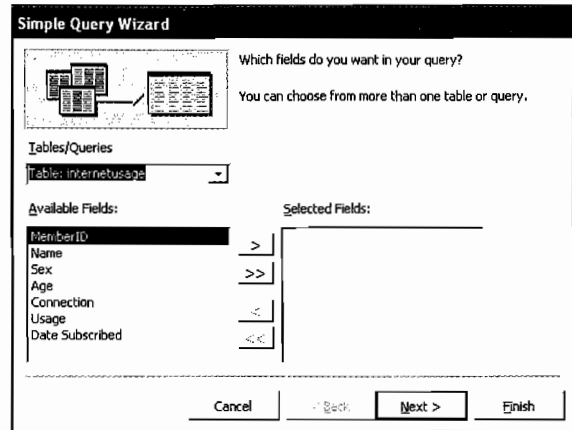
Record: 1 of 3 (Filtered)

## 4.4 Query

Learning Objective: 3

### Query

- Create a query for the third information required:  
Girls that access the Internet for more than 3 hours.
- Close the table.
- Click  Queries.
- Click  Create query by using wizard.
- Click  to select all the fields.
- Click .



Simple Query Wizard

Which fields do you want in your query?  
You can choose from more than one table or query.



Tables/Queries  
Table: Internetusage

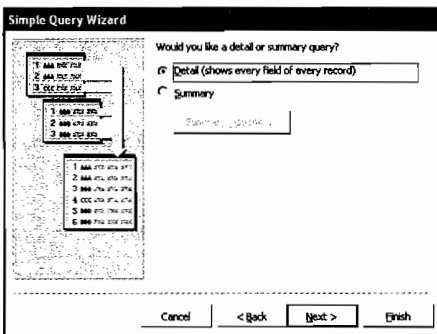
Available Fields:  
MemberID  
Name  
Sex  
Age  
Connection  
Usage  
Date Subscribed

Selected Fields:

Cancel < Back Next > Finish

### Simple Query Wizard

- Click  Detail (shows every field of every record).
- Click .





Simple Query Wizard

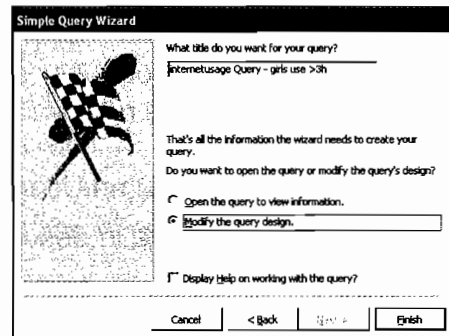
Would you like a detail or summary query?

☒ Detail (shows every field of every record)

☐ Summary

Cancel < Back Next > Finish

- Type internetusagequery-girlsuse>3h as the name of the query.
- Click  Modify the query design.
- Click .



Simple Query Wizard

What title do you want for your query?  
Internetusage Query - girls use >3h

That's all the information the wizard needs to create your query.

Do you want to open the query or modify the query's design?


☐ Open the query to view information.

☒ Modify the query design.

☐ Display help on working with the query?

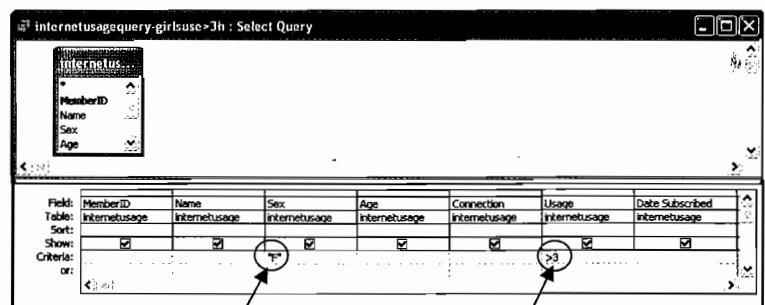
Cancel < Back Next > Finish

### Change the query

- In the column Sex, type "F".
- In the column Usage, type >3.
- Click  to run the query.



I also spend more than 3 hours surfing the net every day!



Internetusagequery-girlsuse>3h: Select Query

Field:	MemberID	Name	Sex	Age	Connection	Usage	Date Subscribed
Table:	Internetusage	Internetusage	Internetusage	Internetusage	Internetusage	Internetusage	Internetusage
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			"F"			>3	
or:							

## Result of query

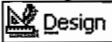

- The result of the query shows that there are 5 girls who use the Internet for more than 3 hours every day!

**internetusage Query - girls use >3h : Select Query**

	MemberID	Name	Sex	Age	Connection	Usage	Date Subscribed
▶	003	Elizabeth Goh	F	13	B	8	15/02/2005
	005	Mary Peter	F	16	D	4	07/05/2000
	006	Fatimah Ali	F	12	B	5	15/12/2004
	007	Siti Noraliza	F	15	D	5	01/02/1999
	011	Betty Victoria	F	15	B	7	18/11/2004
*							

Record: 1 of 5

## Other queries

- You can always change the query for other information.
- Find out:  
Who are still using dial-up connection?
- Select internetusage Query - girls use >3h and click .
- Delete the criteria in the columns Sex and Usage.
- Type D in the column Connection in the row for Criteria.
- Uncheck the check-box for the fields MemberID, Sex and Date Subscribed so that we have information on Name, Age, Connection and Usage only.
- Save the query as dial-upusers.
- Click  to run the query.

**dial-upusers : Select Query**

	Name	Age	Connection	Usage
▶	William Tee	15	D	2.5
	Mohd. Aziz	17	D	1
	Mary Peter	16	D	4
	Siti Noraliza	15	D	5
	Limalawati Hassan	16	D	2
	Boniface David	16	D	1
*				

Record: 1 of 6

## Queries exercises

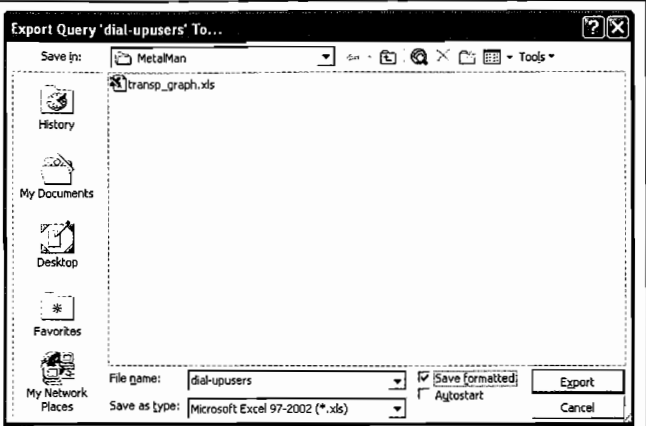
- Create a new query using the Query Wizard to search for information on:
  - The Broadband users; save the query as broadbandusers.
  - Boys who are more than 15 years old and used the Internet for more than 5 hours; save your query as boys>15yrs>5h.
  - Users who are less than 14 years old; save your query as youngusers.
- Change the broadbandusers query to find out who used Broadband before the year 2005; save the query with a suitable name.  
(Hint: type <#01/01/2005# in the column Date Subscribed for Criteria)
- Modify the boys>15yrs>5h query to find out girls who are more than 16 years old and use the Internet for more than 4 hours; save the query with a suitable name.
- Modify the youngusers query to find out who use the Internet for more than 7 hours per day; save the query as heavyusers.

4.5 Exporting information

Learning Objective: 6

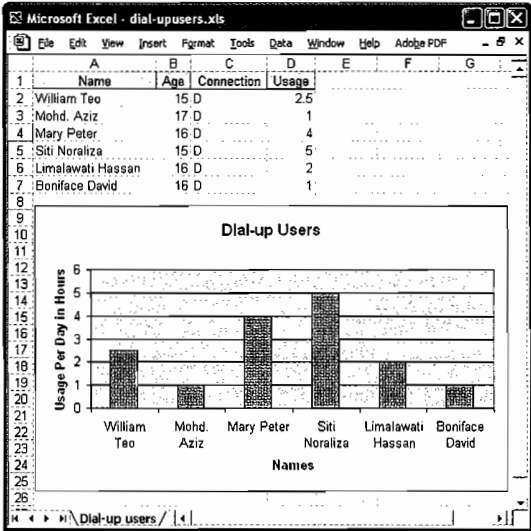
Export to MS Excel

- Open the query dial-upusers from the previous exercise.
- Click **Export...**
- Select the folder you intend to save the exported information in.
- Check the option ☒ **Save formatted**
- Change the Save as type to **Microsoft Excel 97-2002 (\*.xls)**
- Click **Export All**



Graph in MS Excel

- Load **Microsoft Excel**
- Open the file dial-upusers.xls.
- Plot a column chart on Dial-up Users by Usage with:
  - Chart title: Dial-up Users
  - Category (X-axis): Names
  - Value (Y-axis): Usage Per Day in Hours.
- Remove the legend.
- Place the graph under the data table.
- Draw another graph Users by Age.
- Use a suitable title and labels.
- Place the graph below the first graph.



Export to MS Word

- Change the broadbandusers query so that it shows only Broadband users who are less than 15 years old.
- Save the query as bb\_below15yrs.
- Click **Export...**
- Select the folder you intend to save the exported information in.
- Change the Save as type to **Rich Text Format (\*.rtf)**
- Click **Export All**
- Load MS Word.
- To open the file, you need to change the Files of type to **Rich Text Format (\*.rtf)**
- You can save it again in the **Word Document (\*.doc)** format.

Name	Sex	Age
Phua Chu Meng	M	16
Elizabeth Goh	F	13
Fatimah Ali	F	12
Bruce Lee	M	17
Jong Ah Lai	M	14
Betty Victoria	F	15
Henry Joseph	M	16
Anthony Yap	M	12
Lai Fatt Cai	M	15

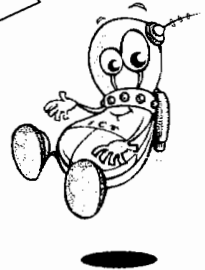
## 4.6 Data security

Learning Objective: 5

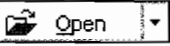
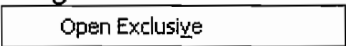


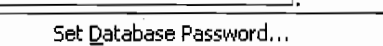

### Data back-up

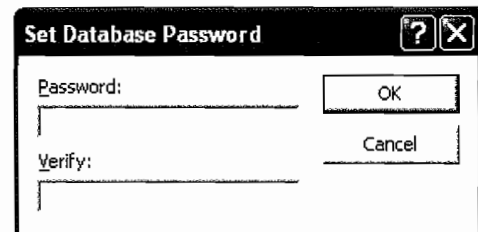
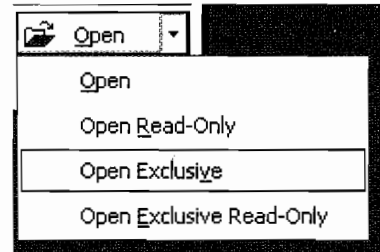
- To prevent loss of data, you must always save back-up copies of the database.
- You can use the same filename or a new filename.
- Save the file in other storage devices like USB thumb or pen drive, CD or any other suitable devices.
- The back-up files must not be stored in the same room as the original data files.

*For very important data back-up, like those from the bank, the back-up files are even kept in a separate building to prevent data loss in case of fire!*


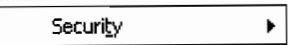
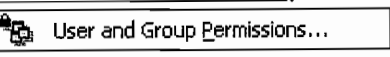



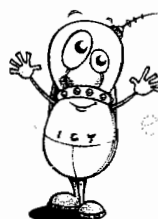
### Database password

- Passwords can be used to prevent unauthorised persons from reading the data.
- Before you can apply a database password, the database must be opened exclusively.
- Select internetusage.mdb from the folder.
- Click the right side of .
- Select .
- Click .
- Click .
- Click .
- Type a password of your own choice.
- Retype the exact password to verify.
- Click .

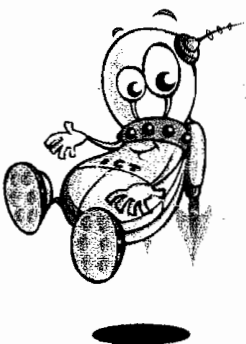
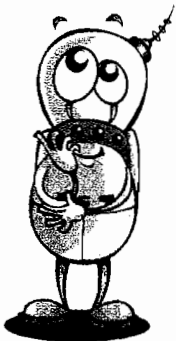
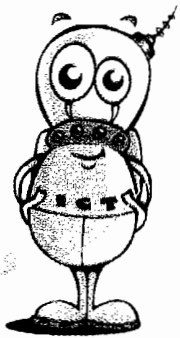
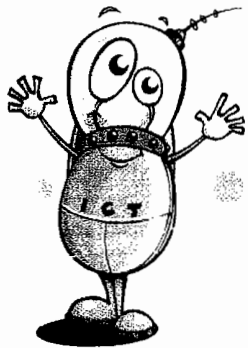


### User and Group Permissions

- Click .
- Click .
- Click .
- Select the option  Groups.
- You can then set permissions for different users to access or perform different tasks to the table or queries.



*For the final assessment, students are NOT required to show their IT skills in setting passwords or permissions. However, they are required to mention at least one security measure to prove that they are aware of data security.*

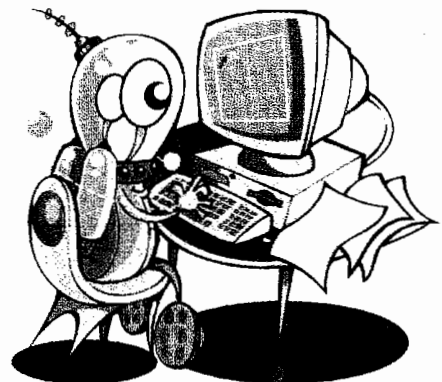


## Module 5

# Control for a Purpose

### Learning Objectives

	Student is able to:	Pass/ Merit
1	Design a control system	P
2	Build a sequence of events to activate multiple devices concurrently	P
3	Correct and improve procedures	M
4	Evaluate the system, identifying limitations	M



## 5.1 Control devices

Learning Objective: Introduction

### Control devices

- Examples of control devices:
  - fire alarm
  - traffic light
  - greenhouse
  - car-park barriers
  - burglar alarm
  - fridge-cooling system.
- Name 2 more common control systems or control devices:  
\_\_\_\_\_  
\_\_\_\_\_

### Inputs and outputs

- Each control device is set to receive inputs directly or through sensors.
- The device will then process according to the inputs and the conditions set.
- The reaction is then reflected in the outputs.
- Examples of inputs: microphones, switches, sensors that detect changes, TV aerials, sound detectors and light detectors.
- Examples of processors: amplifiers, decision-making circuits, counters, timers.
- Examples of outputs: light bulbs, LEDs, loudspeakers, motors.

### Identifying the devices

- Identify the input, processor and output devices of each system below (the first one is given as an example):
  - Fire alarm
    - Input: heat sensor
    - Processor: decision-making circuit
    - Output: sound (loudspeaker)
  - Traffic light
    - Input:
    - Processor:
    - Output:
  - Greenhouse
    - Input:
    - Processor:
    - Output:
  - Car-park barriers
    - Input:
    - Processor:
    - Output:
  - Burglar alarm
    - Input:
    - Processor:
    - Output:
  - Fridge-cooling system
    - Input:
    - Processor:
    - Output:
- Fill in the two control-device or control-system examples that you gave above:
  - \_\_\_\_\_
    - Input:
    - Processor:
    - Output:
  - \_\_\_\_\_
    - Input:
    - Processor:
    - Output:

## 5.2 Flow charts

Learning Objective: Introduction

### What are flow charts?

- A process or work procedure can be illustrated by using flow charts or graphical representations.
- Each step in a process is represented by a symbolic shape.
- The flow of the process is indicated by arrows connecting the symbols.
- Flow charts are useful for displaying how a process functions or could ideally function.
- Flow charts can help you see whether the steps of a process are logical.
- They can be used to uncover problems or miscommunications and to develop a common base of knowledge about a process.
- Flow-charting a process helps to avoid redundancies, delays, dead ends and indirect paths that would otherwise remain unnoticed or ignored.

### Basic symbols



- An oval indicates both the starting point and the ending point of the process.



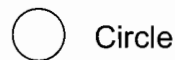
- A box represents an individual step or activity in the process.



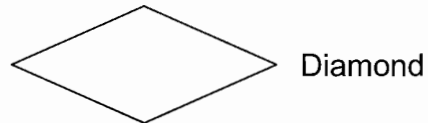
- This indicates the direction flow of the process.



- A box with 2 side margins represents a subroutine.



- A circle indicates that a particular step is connected within the page. A numerical value placed in the circle indicates the sequence continuation.

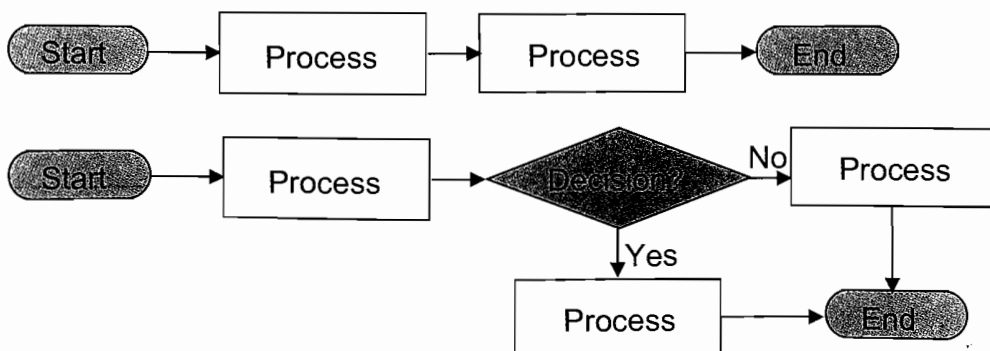


- A diamond shows a decision point, such as yes/no or go/no-go. Each path emerging from the diamond must be labelled with one of the possible answers.



- A rhombus shows input or output devices.

### Examples of flow charts





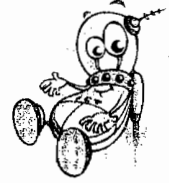
## 5.3 Creating a working module

Learning Objective: 1

### Design

- Design is the first of the 5 criteria for success in creating working module:
  - design
  - create
  - test
  - change
  - evaluate.
- Identify the function of the system, the inputs and the outputs.
- Collect evidence at each stage.
- Well-planned modules make it easier to test, change and evaluate the system.

*Failing to plan is planning to fail!*



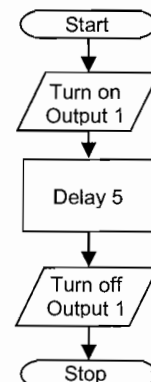
### Zebra-crossing system

- Basically the system works as below:
  - The system turns on the light for the pedestrian to cross.
  - The light stays on for a few seconds.
  - The system turns off the light.
- The following shows the planning for creating the system.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.	Start	Start
Turn on the light.	Turn on Output 1	Input Output
Let the light stay on for 5 seconds.	Delay 5	Process
Turn off the light.	Turn off Output 1	Input Output
Stop the system.	Stop	Stop

### Flow chart

- Draw the flow chart.
- The flow chart shown is only an example.
- Test the flow chart with appropriate simulation software such as Flowol or Learn & Go.
- You can draw the flow chart easily using the features and functions that come with these types of software.
- Software with special mimics makes the simulation more interesting.
- Save your work as zebra1.

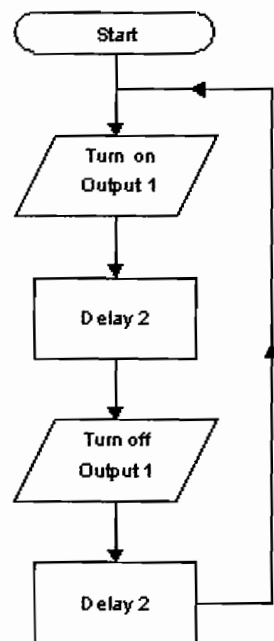


## 5.4 Looping

Learning Objective: 1

### Looping and blinking

- The previous system stops until it is activated again.
- We can make the system blink by adding another delay and repeating the process.
- After the system is switched on, it will immediately trigger the light.
- The first delay will determine the duration for the light to stay on.
- The light is then turned off.
- The next delay will then determine the duration for the light to stay off.
- The loop – the line that leads the way back to the starting point – will repeat the whole system from the beginning.
- Make changes to your first flow chart.
- Test the new system again.
- Save your work as zebra2.



### The lighthouse

- The blinking effect can be applied to a lighthouse.
- Simultaneously, the lighthouse can also give a second output: the buzzer.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.	Start	
Turn on the light and the buzzer.	Turn on Output 1 and Output 2	
Let the light and buzzer stay on for 5 seconds.	Delay 5	
Turn off the light and the buzzer.	Turn off Output 1 and Output 2	
Let the light stay on for 5 seconds.	Delay 5	
Repeat the system.	Loop	(Lead the arrow back to the first Input/Output box)

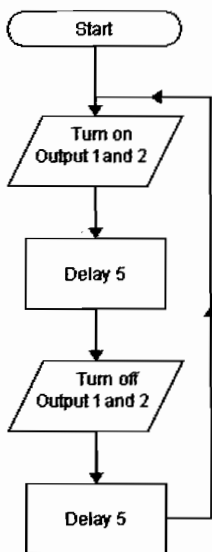
## 5.5 Input switch

Learning Objective: 1

### Multiple inputs and outputs

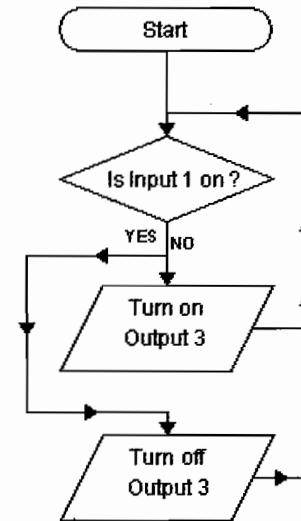
- Construct the flow chart.
- Some simulation software allows more than 2 inputs or outputs to be listed in the same symbol. (Check the manual for your software.)
- The inputs or outputs will be executed at the same time.
- Test your system.
- Save your work as **lighthouse1**.

Lighthouse



### Input and decision

- The brightness (sun/moon) can be used as an input for deciding whether the internal light of the lighthouse needs to be switched on or not.
- If it is bright (sun), the decision will lead to switching the output (internal light) off.
- If it is dim (moon), the decision will lead to switching the output (internal light) on.
- Test your system.
- Save your work as **lighthouse2**.



### Traffic lights

- At the start, the red light is switched on and stays on for 5 seconds.
- The green light is then switched on at the same time as the red light is switched off. The light stays on for another 5 seconds.
- The green light is then switched off while the yellow light is switched on simultaneously.
- The yellow light is allowed to stay on for 3 seconds before it is switched off while the red light is switched on. The process is then repeated.
- Based on the description above, construct the flow chart based on the contents of the table on the next page.



Red  
= STOP

Output  
1



Green  
= GO

Output  
2



Yellow  
= READY  
TO STOP

Output  
3



Red  
= STOP

Output  
1

## 5.6 Double sets of traffic lights

Learning Objective: 2

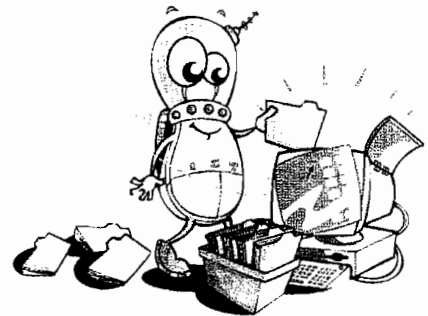
### Traffic lights

- Make a flow chart of the system indicated by the table.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.	Start	Start
Turn on the red light.	Turn on Output 1	Input Output
Let the red light stay on for 5 seconds.	Delay 5	Process
Turn off the red light and turn on the green light.	Turn off Output 1 and turn on Output 2	Input Output
Let the light stay on for 5 seconds.	Delay 5	Process
Turn off the green light and turn on the yellow light.	Turn off Output 2 and turn on Output 3	Input Output
Let the light stay on for 3 seconds.	Delay 3	Process
Repeat the system.	Loop	(Lead the arrow back to the first Input/Output box)

### Flow chart

- Use the simulation software to draw your flow chart.
- Print the flow chart and glue it in the space on the right.
- Test the system with your software, observe the limitations and compare it with a real-life situation. (Note: the suggested system may be different from the system in your country. You are free to make the necessary changes.)
- Save your work as traffic1.

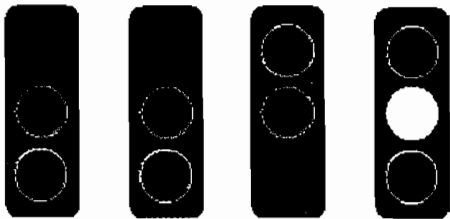


Glue your  
printed flow  
chart here!

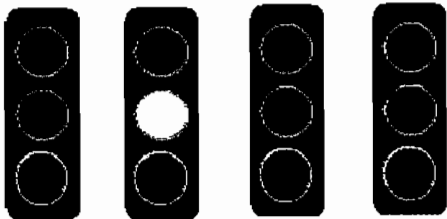
Traffic lights at crossroads

- Two different sets of traffic lights are needed at the crossroads junction.
- The two sets of traffic lights must work with reference to each other.

Output	Description	Function
Output 1	Red 1	Stop
Output 2	Green 1	Go
Output 3	Yellow 1	Wait
Output 4	Red 2	Stop
Output 5	Green 2	Go
Output 6	Yellow 2	Wait



Set A



Set B

Flow chart

- Complete the following table for creating the flow chart of a set of traffic lights.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.	Start	Start
Turn on the red light of set A. Turn on the green light of set B.	Turn on Output 1 and Output 5	Input Output
Let the red light stay on for 5 seconds.	Delay 5	Process
Turn off the green light and turn on the yellow light of set B. The red light of set A should stay on.		Input Output
Let the light stay on for 3 seconds.		Process
Turn off the yellow light and turn _____ light of set _____. Turn on the _____ light of set A.		Input Output
Let the light stay on for 5 seconds.		Process
Turn off the _____ light and turn on the _____ light of set _____. The red light of set _____ should stay on.		Input Output

Flow chart (continued)

- Continue to complete the following table for creating the flow chart of a set of traffic lights.

Description of the event in ordinary words	Control words	Flow-chart symbol
Let the light stay on for 3 seconds.	Delay 3	
Turn off yellow light and turn _____ light of set _____.	Turn off Output 3. Turn on Output 1 and Output 6.	
Turn on the _____ light of set B.		
Repeat the system.	Loop	

- Save your work as traffic2.
- Test your system with simulation software.

Evaluation

- Compare the system with a real-life system and discuss what possible changes you should make to improve the system.  
(Hints:
  - Compare the time delay of the system with the real-life system. Is the time delay long enough in terms of safety?
  - In the system, the light turns green immediately after the red light is turned off. Is this safe? If not, what can be done about it?
  - What limitations are there in this system? What will happen if there is a power failure?
  - What will happen if one or more of the bulbs burn out?)

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- Save your flow chart as traffic3.
- Re-test your flow chart using the software and make any further changes needed.

5.7 Using subroutines

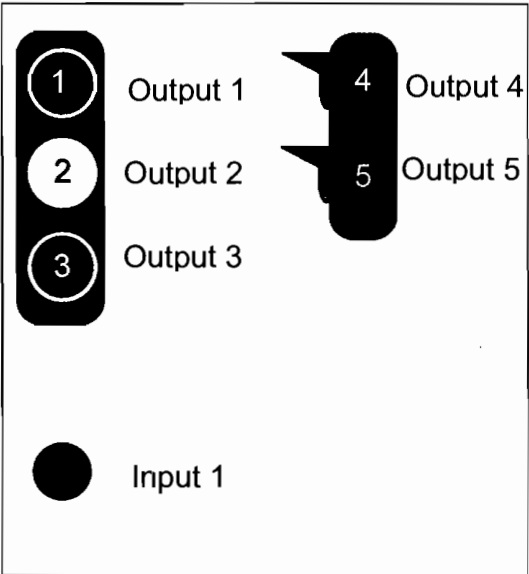
Learning Objective: 2

Pedestrian crossing

- The pedestrian-crossing system will be activated when it receives input from the pedestrian who wishes to cross the road.
- Here is a list of the input and outputs that are used:

Input	Description
Input 1	Signal from pedestrian

Output	Description
Output 1	Red light – stops vehicles
Output 2	Yellow light – warns vehicles to get ready to stop
Output 3	Green light – safe for vehicles to continue
Output 4	Red light – stops pedestrian from crossing
Output 5	Green light – pedestrian safe to cross



Subroutines

- The system may need a long flow chart.
- You can always break down the flow chart into subroutines.
- You can then command them from a main routine.
- Some software may need to create the subroutine first.
- A subroutine starts with Sub. You can then give it a name.
- Use the table below to plan for a subroutine to stop the vehicle.
- Name the subroutine Sub 1(stop).

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the subroutine.	Sub	Sub 1(stop)
Switch off the green light 3 and switch on the warning yellow light 2 for vehicles.	Turn off Output 3. Turn on Output 2.	Input Output
Allow the light to stay on for 2 seconds.	Delay 2	Process
Switch off the yellow light 2 and the red stop light 4; switch on the green light 5 (for the pedestrian crossing) and the red light 1(to stop the vehicles).	Turn off Outputs 2 and 4. Turn on Outputs 5 and 1.	Input Output
Allow the lights to stay on for 8 seconds.	Delay 8	Process
Switch off the green light 5 and the red light 1.	Turn off Outputs 5 and 1.	Input Output
Stop the subroutine.	Stop	Stop

## 5.8 Subroutines

Learning Objective: 2

### Subroutine 2

- We need another subroutine to flash the green light for the pedestrian as a warning that time is running out.
- The idea is just to switch the green light on and off.
- Use the table below to plan for the flashing subroutine to warn the pedestrian.
- Name the subroutine Sub 2(flash).

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the subroutine.	Sub	
Switch on the green light 5 to allow the pedestrian to cross and the red light 1 to stop vehicles.	Turn on Output 1 and Output 5	
Allow the lights to stay on for 5 seconds.	Delay 5	
Switch off the green light 5.	Turn off Output 5	
Allow a time lapse of 5 seconds.	Delay 5	
Stop the subroutine.	Stop	

- To flash the light, repeat this subroutine a few times.

### The main routine

- You will need a main routine to command the subroutines.
- Use the table below to plan for the main routine.
- Name the main routine as main.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the main routine.	Start	
Switch on the red light 4 to stop the pedestrian crossing and the green light 3 to allow vehicles to continue.	Turn on Output 1 and Output 4	
Decision: is Input 1 on?	Decision	
If Input 1 is not on, loop back.	Loop	
If Input 1 is on, activate Sub 1(stop).	Sub	
Activate Sub 2(flash) five times to flash the light.	Sub x 5	
Switch off the red light.	Turn off Output 1	
Loop back to check the input.	Loop	



Testing and evaluation

- Test-run the system with simulation software. You may need to change the name of the output or input to suit the simulation test.
- Compare the system with a real-life system and discuss what possible changes you should make to improve the system.

- Hints:
1. Compare the time delay of the system with the real-life system. Is the time delay long enough in terms of safety?
  2. What are the limitations of the system?
  3. What possible problems could be encountered with the system?
  4. What further safety precautions could be taken?
  5. Make sensible suggestions to improve the system.

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- Save your flow chart as traffic4.
- Re-test your flow chart using the software and make any further changes needed. List any changes that you make in the space below.

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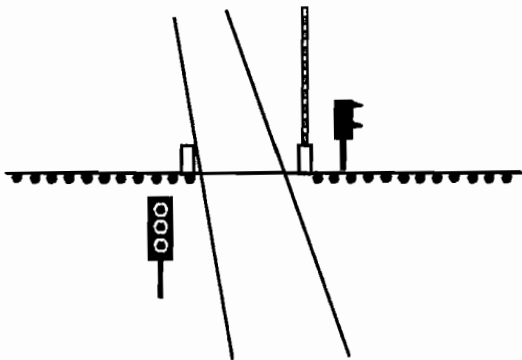
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## 5.9 Using a motor output

Learning Objective: 3

### Level-crossing barrier

- When the train is crossing, the barrier is lowered to close the road to prevent vehicles from crossing.
- When the train has passed, the barrier is lifted up to allow vehicles to cross again.
- The system is similar to a traffic-light system. However, a barrier, controlled by a motor, is used as an additional safeguard.



### The subroutine

- The following are the input and output devices.

Input	Description
Input 1	Device detecting approaching train
Input 2	Device detecting train that has crossed

Output	Description
Output 1	The motor controlling the level
Output 2	Red light stopping train from crossing
Output 3	Green light allowing train to cross
Output 4	Red light stopping vehicles from crossing
Output 5	Green light allowing vehicles to cross

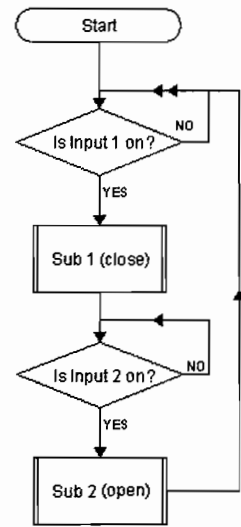
- First create the subroutines to control the barrier motor.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the subroutine.	Sub	Sub 1(close)
Turn the motor on.	Turn motor forward	
Allow 5 seconds' time lapse.	Delay 5	
Turn the motor off.	Turn motor off	
Stop the subroutine.	Stop	Stop

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the subroutine.	Sub	
Turn the motor on (reverse).	Turn motor reverse	
Allow 5 seconds' time lapse.	Delay 5	
Turn the motor off.	Turn motor off	
Stop the subroutine.	Stop	

## The main routine

- Now construct the main routine to command the subroutines.
- Test the system with simulation software.
- You may have to adjust the input and output labels to suit the software.
- Save your work as lvcross1.
- Create subroutines to control the traffic flow on the road.
- You can flash the green light (Output 5) to give warning.
- Save your new work as lvcross2.



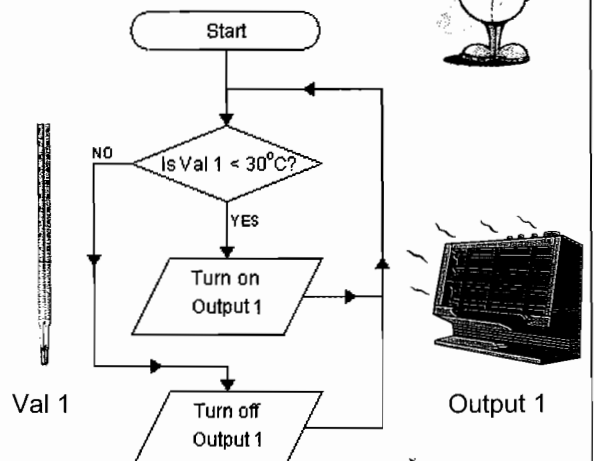
## Evaluation

- Compare the system with a real-life situation.
- Can the system really work?
- Is it really safe?
- Consider what will happen if there is a power failure.
- What will happen if the motor is malfunctioning?
- Will all the drivers or road users follow the signals as they should?
- What will happen if they don't?
- With the modern technology used in building roads, is there a better substitute for the system?
- Would a flyover work better?

## Analogue sensors

- Temperature and brightness are two important variable inputs for controlling certain utilities in a house.
- For example, when the temperature drops below a pre-set level, the electric fire is set to switch on automatically. It is set to switch off automatically when the temperature rises above the pre-set level again.
- Different simulation software packages use different pictures to symbolise the temperature control.
- Some temperature controls can be stepped up or down by 5 or 10 degrees.
- Try a similar flow chart on your software and save your work as fire1.

'Val' means 'variable'.



Ventilation control

- Temperature varies and affects the use of ventilation.
- Create a similar flow chart to control the ventilation fan, using the temperature as variable inputs.
- Save your work as fan1.

Input	Description
Val 1	Temperature control

Output	Description
Output 2	Ventilation fan

- Certain software packages allow two or more main systems to run at the same time.
- Since the electric heater and the ventilation fan both use the variable temperature as input, using the same variable input name allows the two systems to be tested simultaneously.



Val 1



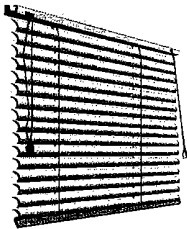
Output 2

Brightness input

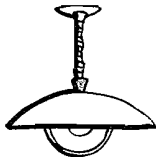
- Brightness is always a factor when considering whether to open the blinds at the windows or switch on the lights in the room.
- This system is similar to the system for controlling the ventilation fan and electric heater.
- Use the following list of input and outputs to create the system and save it as brightness.

Input	Description
Val 2	Brightness control (the sun)

Output	Description
Output 3	Lamp
Output 4	Electric blinds



Output 4  
and Motor b



Output 3

Val 2

- While the lamp is a simple on-and-off system, the electric blinds require a motor to open and close (reverse) them.
- Construct two subroutines, one to turn on the motor and the other one to close (reverse) the motor.
- Construct another main routine to command the 2 subroutines.
- Test the systems and compare them with real-life situations.
- What are the limitations of the systems?

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- What are the possible problems that may affect the systems in real life?

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# 5.10 Greenhouse

Learning Objective: 3

## The greenhouse



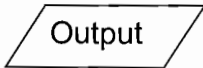
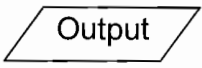

- A greenhouse allows you to grow fresh vegetables, flowers and herbs all year round. The temperature, brightness and humidity need to be controlled properly.
- Certain herbs cultivated in a greenhouse require the temperature to be kept above 30°C and below 50°C. A heat sensor, a heater and a ventilation window control the temperature in the greenhouse.
- Here is a list of the input and outputs that are used:


Input	Description
Val 1	Heat sensor (thermometer)

Output	Description
Output 1	Heater
Output 2	Ventilation window

## Temperature-control system

- Use the table below to plan a simple temperature-control system for the greenhouse.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.	Start	
Check the lowest temperature limit.	Is Val<30°C?	
If the temperature <30°C, turn on the heater.	Yes	
If the temperature >30°C, turn off the heater.	No	
Repeat the checking of lowest temperature limit.	Loop	

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.	Start	
Check the upper temperature limit.	Is Val>50°C?	
	Yes	

- Construct the flow charts for the system using appropriate software.
- Save your flow charts as greenhouse1.

**Testing**

- Test your flow chart using the simulation software.
- As you increase or decrease the temperature, describe what happens:

(i) when the temperature is below 30°C .....

.....

(ii) when the temperature reaches 30°C .....

.....

(iii) when the temperature reaches 50°C .....

.....

(iv) when the temperature is above 50°C .....

.....

- Write down any problems or weaknesses of the system that you are testing.

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- Make changes to resolve the problems that you have encountered above.
- Save your new flow chart as greenhouse2.
- Compare the system that you have designed with a real system. What are the limitations and possible problems that you may encounter?

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## 5.11 Using variables

Learning Objective: 3

### Variables

- We can use a letter to represent a value that is not fixed and that keeps changing.
- We call the letter a variable.
- A variable can be added or subtracted.
- For example:  
Let  $n = 1$   
Let  $n = n + 1$   
Let  $n = n - 1$
- We can use the variable to create a counter to count the number of cars entering or leaving a car park.
- In this way, we can inform car drivers when the car park is full.
- A car-park controlling system adds the number of cars to the counter as it allows them to enter; it subtracts the number of cars from the counter as it allows them to leave. When the number of cars entering the car park has reached its maximum capacity, a "Car Park Full" sign is lit and no more cars are allowed to enter.
- Here is a list of the input and output devices that are used:

Input	Description
Input 1	Detects an incoming car
Input 2	Detects the incoming car passing the barrier
Input 3	Detects an outgoing car
Input 4	Detects the outgoing car passing the barrier

Output	Description
Output 1	Barrier controls incoming cars
Output 2	Barrier controls outgoing cars
Output 3	"Car Park Full" sign

- Complete the table below and use it to plan one subroutine to control incoming cars.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.	Start	
Open the barrier.	Turn on Output 1 (Motor a)	
Delay for 2 seconds.	Delay 2	
Turn off the motor.	Turn off Output 1 (Motor a)	
End the system.	Stop	

- Design a similar subroutine for opening the barrier for an outgoing car.

## Counter

- Complete the table below and use it to plan one subroutine to close the barrier after an incoming car and to add 1 to the counter.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.	Start	
Close the barrier.	Reverse Output 1 (Motor a)	
Delay for 2 seconds.	Delay 2	
Turn off the motor.	Turn off Output 1 (Motor a)	
Add 1 to the counter.	Let $n = n+1$	
End the system.	Stop	

- Design a similar subroutine for closing the barrier for an outgoing car and to subtract 1 from the counter.

## “Car Park Full” sign

- Complete the table below and use it to plan one main routine to check the number of incoming cars and to light the “Car Park Full” sign when the number of incoming cars reaches 4. (For testing purposes, the number suggested is small.)

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.	Start	
Is the counter greater than 4?	Is $n > 4$ ?	
If the counter is greater than 4, light the “Car Park Full” sign.	Turn on Output 3	
If the counter is less than 4, turn off the “Car Park Full” sign.	Turn off Output 3	
End the system.	Stop	

- Save your work as barrier1.



Car park main routine

- Complete the following table and use it to plan for the main routine to command the 2 subroutines that control the barrier for incoming cars.

Description of the event in ordinary words	Control words	Flow-chart symbol
Begin the system.		
Is there a car coming in?	Is Input 1 on?	
Yes: command the subroutine to open the barrier.		
No: loop back to wait for input.		
Has the car passed the barrier?	Is Input 2 on?	
Yes: command the subroutine to close the barrier.		
No: loop to wait for the car to pass.		

- Design a similar main routine to command the other two subroutines to control the outgoing cars.
- Save your flow charts as barrier2.

Testing and evaluation

- Test the whole system using the simulation software.
- In the simulation software that you are using to test the system, how do you simulate the incoming car?

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- Is there a counter to show the number of cars going in and out? If not, how would you know that when the "Car Park Full" sign is lit, the number of cars counted by the counter is the actual maximum limit specified?

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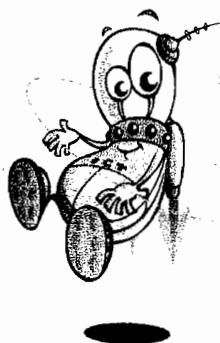
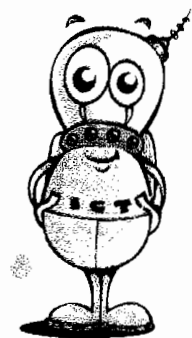
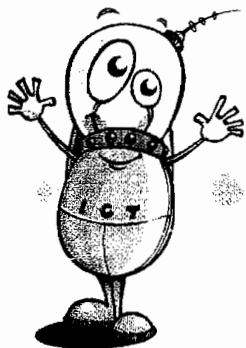
### Identify limitations

- In the design, the barrier is still open when the “Car Park Full” sign is lit. Improve the system so that when the car park is full, the barrier will not open even if Input 1 is on.
- Add a sound effect to alert the incoming cars that the car park is full when the Input 1 detects there is an incoming car.
- Save your improved flow chart as barrier3.
- Compare the system with a real-life situation. What are the limitations of the system that you have just designed?

You can also write about the problems that may be faced in real life. For example, when there is:

- a power failure (the system has no manual mechanism)
- a mechanical breakdown or malfunction of a barrier
- a human error, etc.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

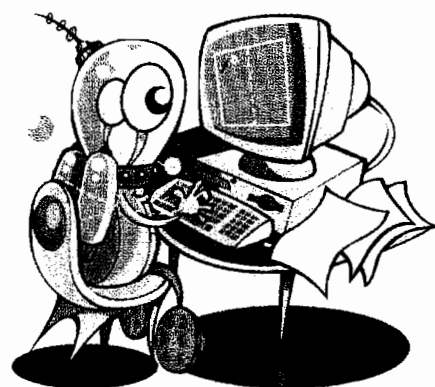


## Module 6

### Website Design for a Purpose

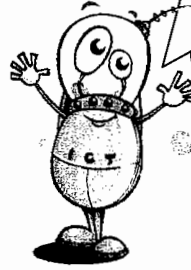
#### Learning Objectives

	Student is able to:	Pass/ Merit
1	Create a series of connected web pages	P
2	Include links	P
3	Insert images	P
4	Demonstrate user awareness	M
5	Recognise HTML code	M



### What is HTML?

- HTML stands for Hypertext Markup Language.
- An HTML file is a text file containing small markup tags.
- The markup tags tell the Web browser how to display the page.
- An HTML file must have an htm or html file extension.
- An HTML file can be created using a simple text editor like Notepad on Windows.
- You can easily edit HTML files using a Webpage editor such as Microsoft FrontPage, instead of writing your markup tags in a plain-text file.



*For beginners, it would be a lot easier to design your first website with the aid of a web-page editor.*

*So for our exercises, we will be using Microsoft FrontPage to start our first web project.*

### Good website design

- To become a good website designer, you will have to be aware of the needs of your audiences:
  - Font type, size and colour should be readable and should not strain your audience's eyes
  - Hyperlinks, hotspots and navigation menu should be working and valid
  - Images should not take too long to download, so always check the size of the image file you are planning to use
  - Consistent layout design and style in all your web pages.
- List down what you like and don't like about the design of any website you have visited recently:

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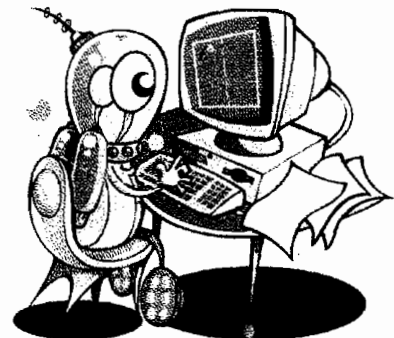
.....

.....




.....

.....

*Print out that web page and glue it here!*



## Opening FrontPage

- To run Microsoft FrontPage, do the following:
  - On the Windows taskbar, click , point to  and then click  Microsoft FrontPage.
  - If this is the first time you've used FrontPage, the program opens and displays a blank page ready for editing.

*If FrontPage has been used to edit another website, it will open the last website automatically.*

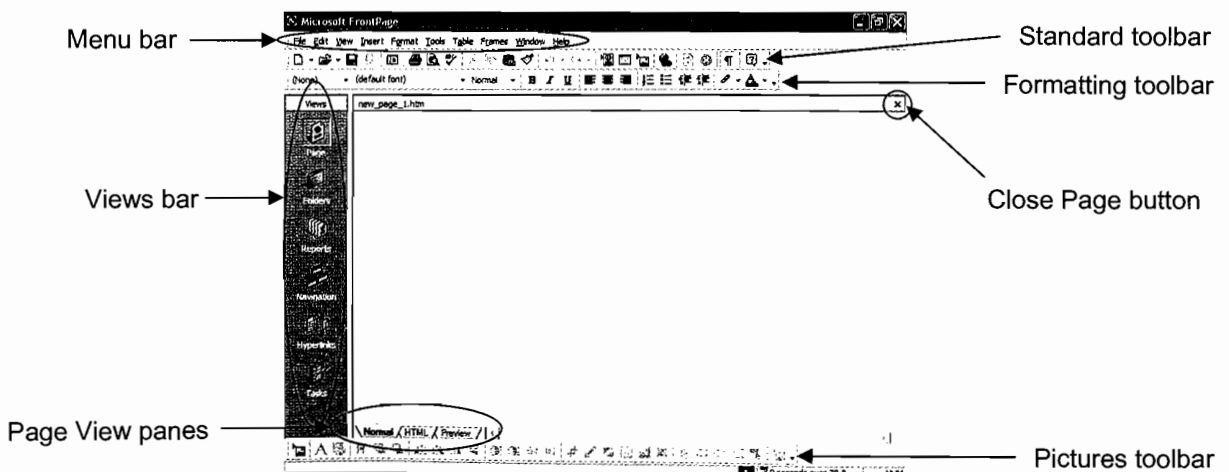
*To close a website: go to **File** and click **Close Web**.*



## Workspace overview

- The following table and graphic highlight some of the commonly used features in FrontPage.


Item	Description
Views bar	The icons on the Views bar provide different ways of looking at the information on your page or in your website.
Menu bar	Contains menus such as File, Edit, View and Insert.
Close Page button	This button closes the page that is currently on view.
Page View panes	These represent the different panes of the workspace. The Normal pane is where you will do most of your work. The HTML pane shows the page's source code. The Preview pane shows how the page will appear in the web browser.
Standard, Formatting and Pictures toolbars	These provide easy access to the commands you will use most often in FrontPage.



## 6.3 Creating web pages

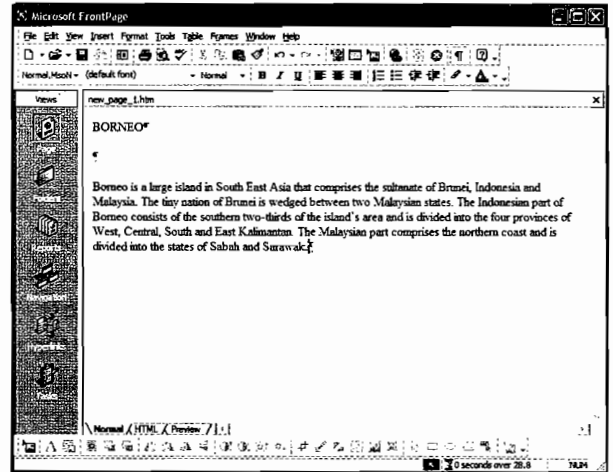
Learning Objective: 1

### Creating a homepage

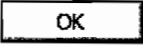
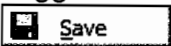
- On the blank page in Page View, type BORNEO and then tap  twice.
- Next, type the paragraph below:

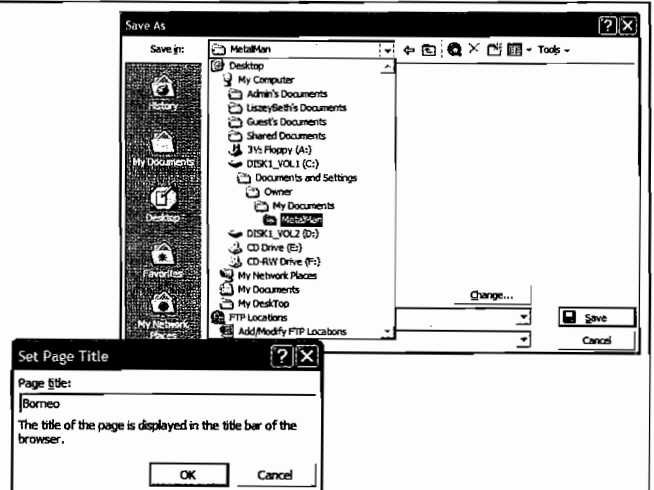
Borneo is a large island in South East Asia that comprises the sultanate of Brunei, Indonesia and Malaysia. The tiny nation of Brunei is wedged between two Malaysian states. The Indonesian part of Borneo consists of the southern two-thirds of the island's area and is divided into the four provinces of West, Central, South and East Kalimantan. The Malaysian part comprises the northern coast and is divided into the states of Sabah and Sarawak.

- Your page should now look like this:

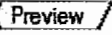



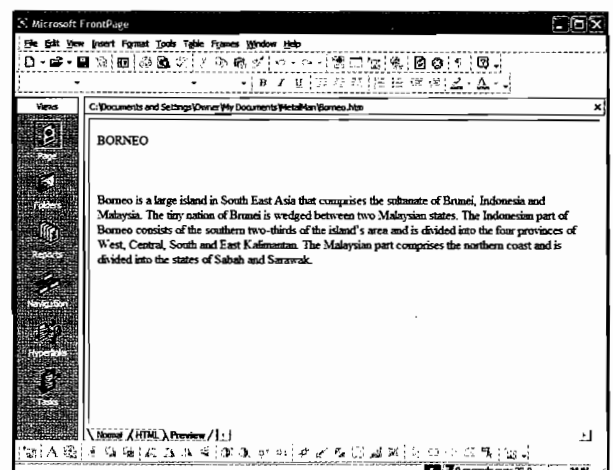
### Saving the current page

- In **File**, click **Save As...**
- In the Save As dialog box, use the drop-down box to select your folder.
- Next to **Page title: New Page 1**, click **Change...**
- In the Set Page Title box, type Borneo and then click .
- In **File name: new\_page\_1**, change the suggested text to Borneo, and then click .





### Previewing the current page

- Click  at the bottom of the page.
- Looking at your page in the Preview pane is a quick and convenient way to see how certain elements will appear in a Web browser.
- Click  at the bottom of the page to return to the Normal pane once again.

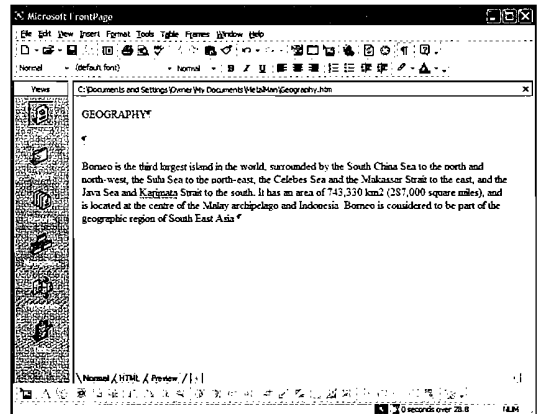


## Adding a new page




- Click .
- On the blank page in Normal view, type **GEOGRAPHY** and then tap  twice.
- Next, type the paragraph below:

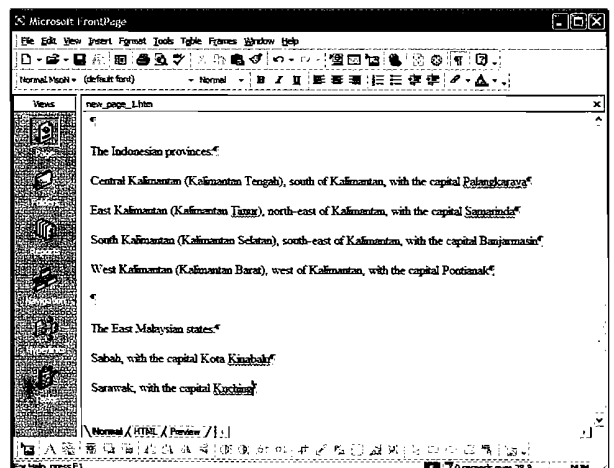
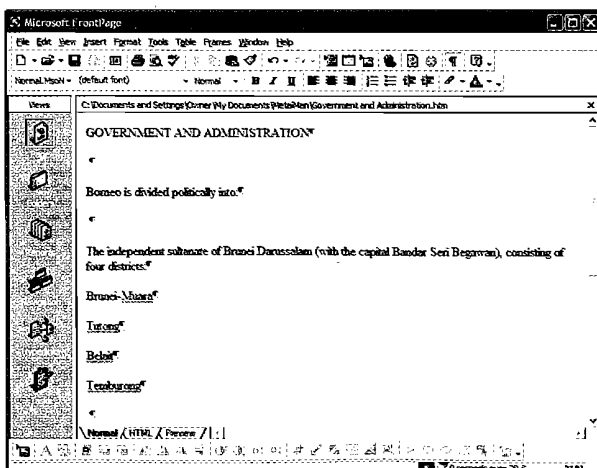
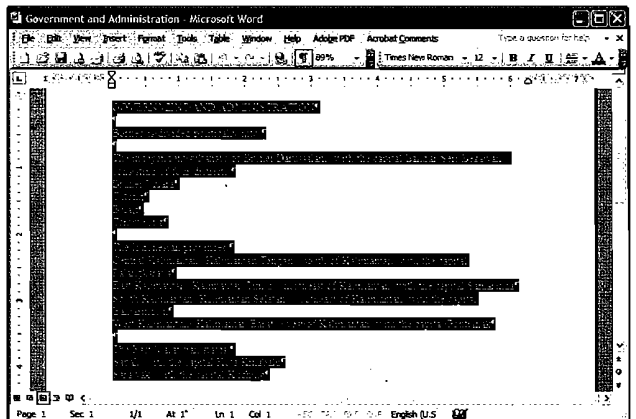
Borneo is the third largest island in the world, surrounded by the South China Sea to the north and north-west, the Sulu Sea to the north-east, the Celebes Sea and the Makassar Strait to the east, and the Java Sea and Karimata Strait to the south. It has an area of 743,330 km<sup>2</sup> (287,000 square miles), and is located at the centre of the Malay Archipelago and Indonesia. Borneo is considered to be part of the geographic region of South East Asia.

- Save this page as:
  - Page title – *Geography*
  - Filename – *Geography*
- Your page should now look like this:



## Adding another page

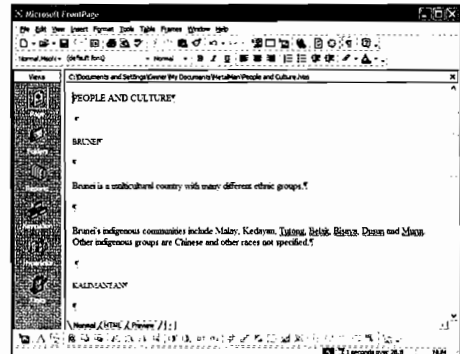
- Open the Word document file **Government and Administration**.
- Select all the content and click .
- Go back to FrontPage and click .
- Then click .
- Save this page as:
  - Page title – *Government and Administration*
  - Filename – *Government and Administration*
- Your page should now look like this:



## Adding the final page

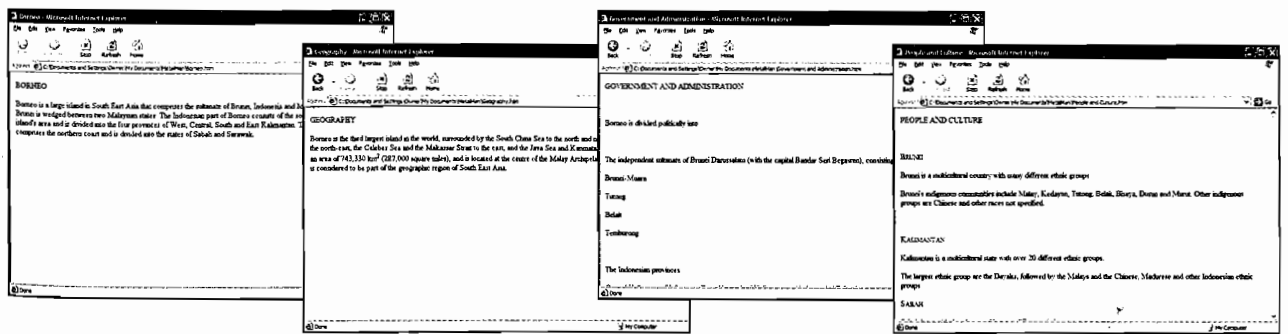
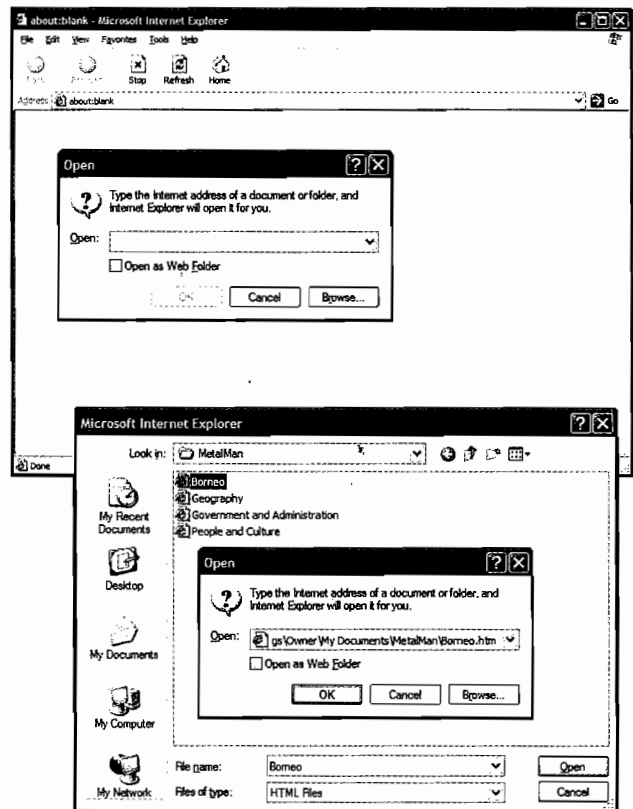
- Open the Word document file People and Culture.
- Select and copy all the content in the document, then paste on to a new page in FrontPage.
- Save this page as:
  - Page title – People and Culture
  - Filename – People and Culture.

- Your page should now look like this:



## Viewing web pages

- To view your Web pages on the web browser Internet Explorer, do the following:
  - On the Windows taskbar, click **start**, point to **All Programs** and then click **Internet Explorer**.
- Or
  - On the Desktop, look for the icon and double-click on it.
- In **File**, click **Open...** **Ctrl+O**.
- In the Open dialog box, click **Browse...**.
- Browse through for your folder, select your web page Borneo and click **Open**.
- In the Open dialog box, click **OK**.
- View all the other web pages you have created.





## 6.4 Creating hyperlinks

Learning Objective: 2

### Adding links

- Go back to your previous work Borneo.
- At the end of the last paragraph, tap



twice.

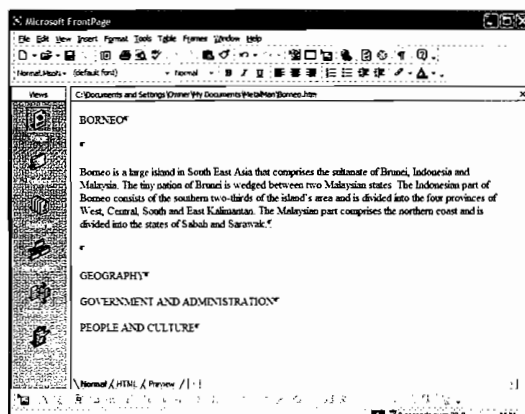
- Type:

GEOGRAPHY



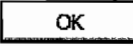

GOVERNMENT AND ADMINISTRATION

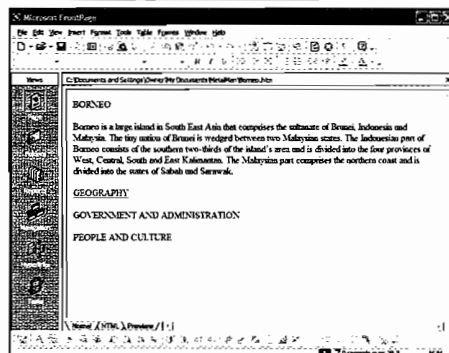
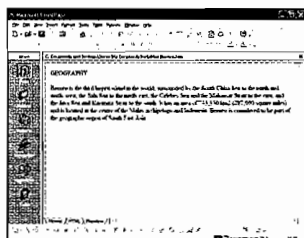
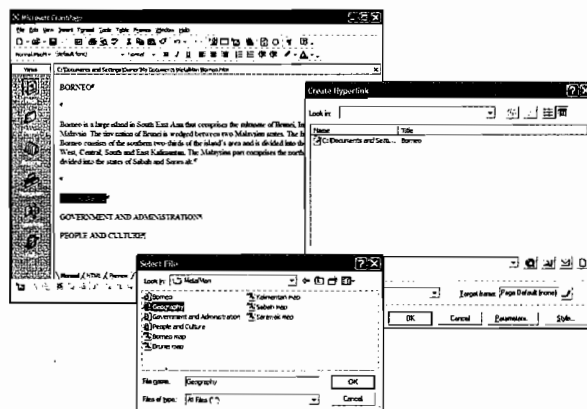
- PEOPLE AND CULTURE.

- Save your work.

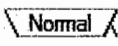


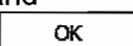


### Linking web pages

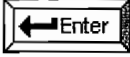


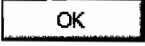

- Select the text GEOGRAPHY.
- Click  on the Standard toolbar.
- In the Create Hyperlink dialog box, click .
- Browse through your folder, select your web page Geography and click .
- Save your work.
- Now preview the page by clicking  at the bottom of the page.
- Click on the coloured and underlined text GEOGRAPHY.
- It should bring you to the page you created previously, titled Geography.

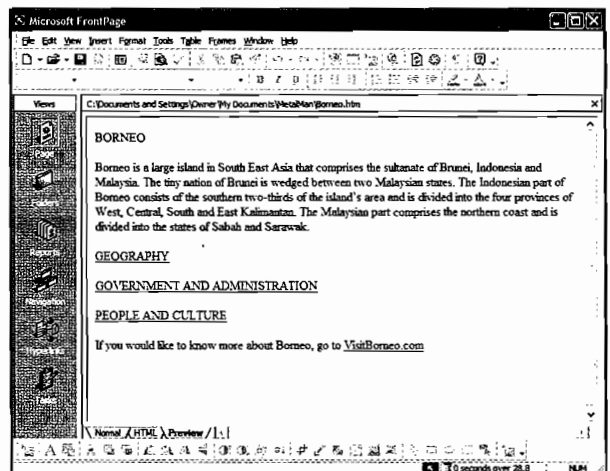
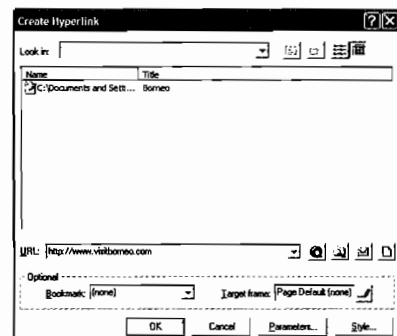
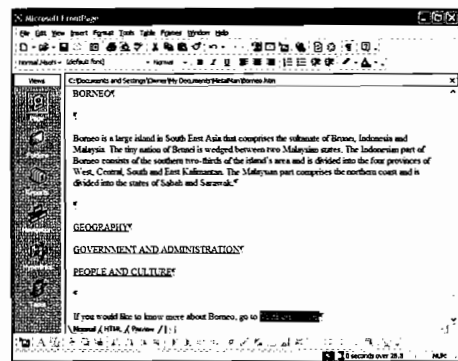
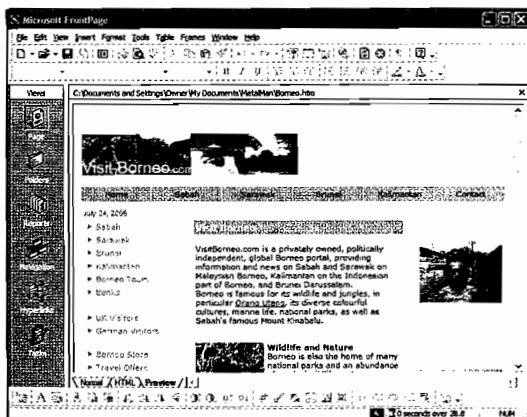


### Internal links




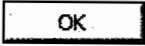
- Click  at the bottom of the page to return to the Normal pane.
- Select the text GOVERNMENT AND ADMINISTRATION.
- Click .
- Click .
- Browse through your folder, select your web page Government and Administration and click .
- Repeat the previous steps for the text PEOPLE AND CULTURE and link it to the page People and Culture.
- Save your work.

## Linking to other websites

- Go back to your previous work Borneo.
- At the end of the last text People and Culture, tap  twice.
- Type this sentence:
- If you would like to know more about Borneo, go to VisitBorneo.com.
- Select the text VisitBorneo.com.
- Click .
- In the Create Hyperlink dialog box, type the following web address in URL: : www.visitborneo.com.
- Click .
- Save your work.
- Now preview the page by clicking  at the bottom of the page.
- Click on the coloured and underlined text VisitBorneo.com.
- It should bring you to the page titled VisitBorneo.com as shown below:



## External links

- Go back to your previous work Borneo, by clicking .
- In the paragraph, select the word Brunei in the second sentence after the text "The tiny nation of".
- Click .
- Type the following web address in URL: : www.tourismbrunei.com.
- Click .

- Repeat the steps again for:

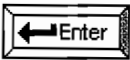


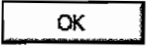
Word	Link to
Kalimantan	www.e-borneo.com/infoborneo/kal-tourism.html
Sabah	www.sabahtourism.com
Sarawak	www.sarawaktourism.com

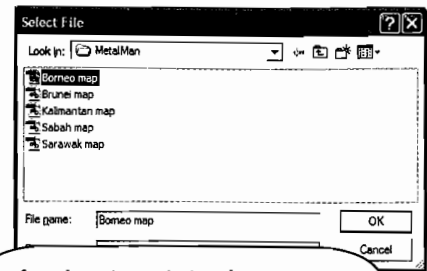
- Save your work.


## 6.5 Inserting images

Learning Objective: 3

### Inserting an image




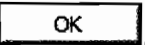
- Go back to your previous work Borneo in the Normal view.
- At the end of the title BORNEO, tap  once.
- In Insert, point to Picture  and then click  From File...
- In the Select File dialog box, use the drop-down box to browse through your folder for the image file Borneo map.
- Select the file and then click .

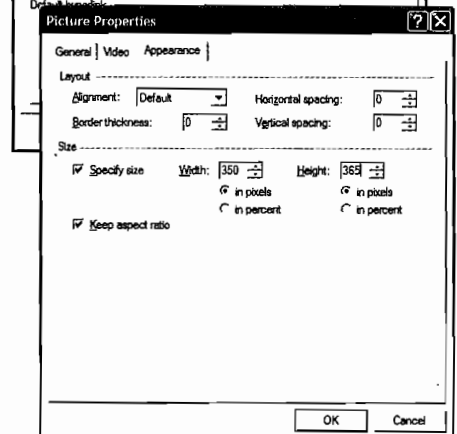
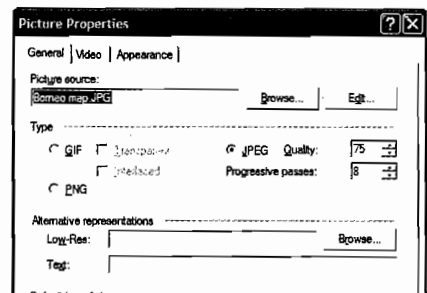


A short cut to insert an image is made available by clicking  on the Standard toolbar.







### Resizing an image

- Select the Borneo map image.
- On Format, select  Properties... Alt+Enter.
- In the Picture Properties dialog box, select Appearance |.
- In Size, check ☒ Specify size.
- In Width: , change the number specified to 350.
- In Height: , change the number specified to 365.
- Click .
- Your inserted image should now fit comfortably in your web page.




### Aligning the image

- Select the Borneo map image again.
- On the Formatting toolbar, click .
- The image should automatically align to the left.
- Click , and the image is now right-aligned.
- Click  again.
- Now click , and the image is centred.
- Save your work.
- Preview the page.
- Your web page should look like this:



## Auto thumbnail

- Go back to your previous work Geography in the Normal view.

- At the end of the paragraph, tap  twice.
- Type:



Map of Borneo

Map of Brunei

Map of Kalimantan


Map of Sabah

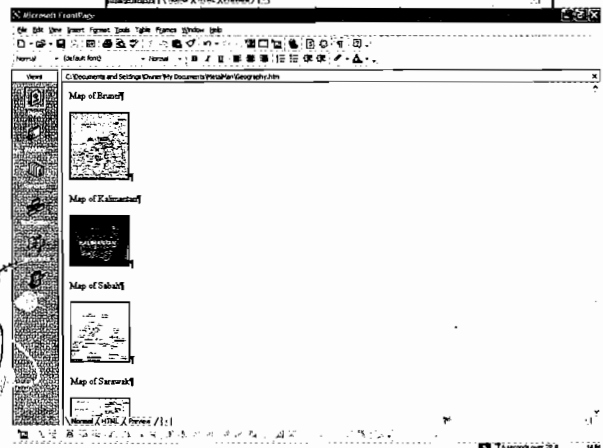
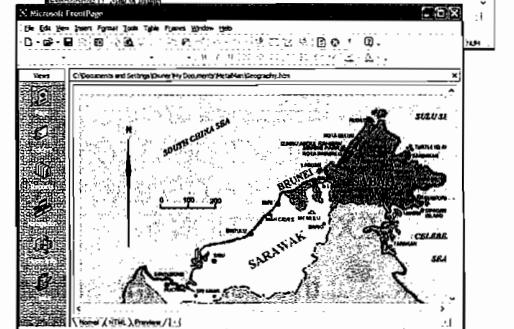
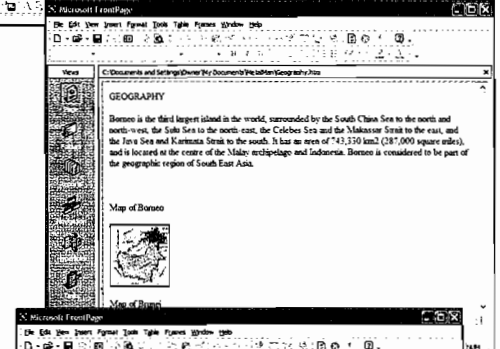
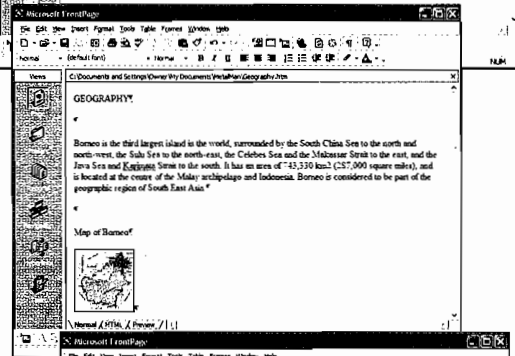
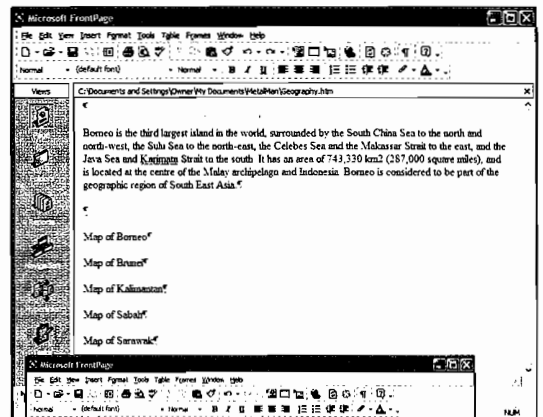
Map of Sarawak.

- At the end of the title, Map of Borneo, tap  once.
- Insert the image Borneo map.
- Select the image.
- On the Pictures toolbar, click .
- The image is automatically resized into a thumbnail.
- Save your work.
- Preview the page.
- Click on the thumbnail image.
- It should bring you to an enlarged image of the Borneo map.
- Go back to the Normal view.
- Repeat the steps above to create thumbnails for the rest in the list:


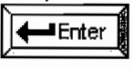


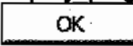
Map	Image
Brunei	Brunei map
Kalimantan	Kalimantan map
Sabah	Sabah map
Sarawak	Sarawak map

- Save your work.

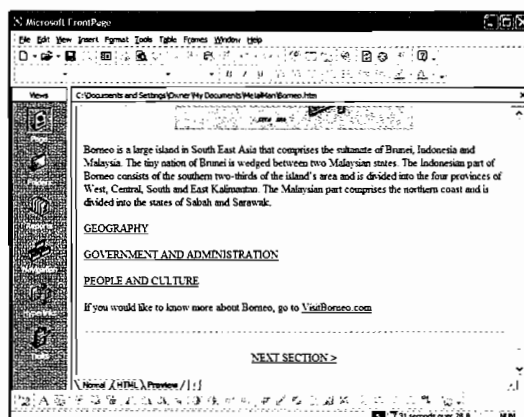
You can also add internal or external links to any image. Just select the image, click , then follow the steps to add the appropriate link.





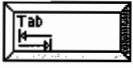

### Navigation options

- Go back to your previous work Borneo in the Normal view.
- At the end of the sentence "If you would...", tap  twice.
- In Insert, click Horizontal Line.
- Tap  again.
- Type: NEXT SECTION >.
- Select the text NEXT SECTION >.
- Click : this centres the text.
- Then click  to link this text to the Geography page.
- Click .
- Save your work.

- Now preview the page.
- Click on the coloured and underlined text NEXT SECTION >.
- It should bring you to the page entitled Geography.



### Consistent navigation

- Go back to your previous work Geography in the Normal view.
- At the end of the page, tap  twice.
- In Insert, click Horizontal Line.
- Tap  again.
- Type: < GO BACK TO HOME.
- Then tap  once.
- Now type: NEXT SECTION >.
- Select both text < GO BACK TO HOME and NEXT SECTION >.
- Click : this centres the selected text.
- Now repeat the steps to link each text to the appropriate page:

Text	Link to page
< GO BACK TO HOME	Borneo
NEXT SECTION >	Government and Administration

- Save your work.
- Add these navigation options to your other works Government and Administration and People and Culture.
- Refer to the tables on the right.

- For the page Government and Administration:

Text	Link to page
< GO BACK TO HOME	Borneo
NEXT SECTION >	People and Culture

- For the page People and Culture:

Text	Link to page
< GO BACK TO HOME	Borneo



*Remember to centre all the text, so that every page has the same layout style.*

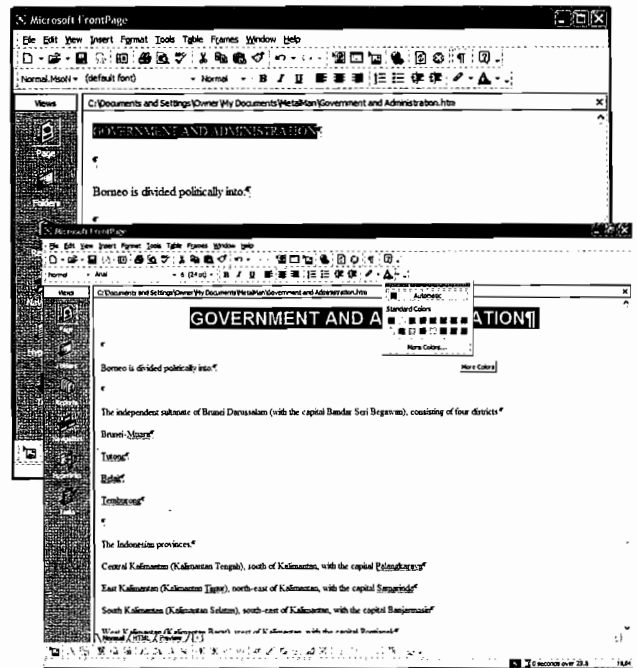
*It's a very good practice to save your work after completing each task.*

*Remember to save all the images used on your web pages within the same folder of your web project.*



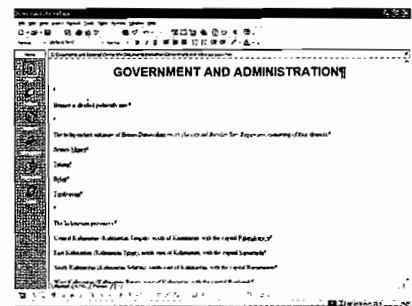
## Headings

- Go back to your previous work Government and Administration in the Normal view.
- Select the heading GOVERNMENT AND ADMINISTRATION.
- Click ▾, next to (default font).
- Select Arial from the list.
- Next click ▾, next to Normal.
- Select 6 (24pt) from the list.
- Then click **B** to embolden the heading.
- Now click .
- Click ▾, next to .
- Select any colour under Standard Colors or click More Colors... for more choices.
- Repeat the steps for the other headings in your other pages.



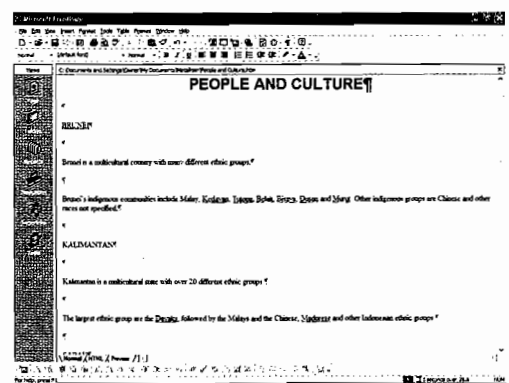
## Body text

- In the same page, select the text (with the capital Bandar Seri Begawan).
- Now click **I** to italicise the text.
- This will add some emphasis to the bracketed text.
- Repeat the steps for the other words in brackets on this page.
- Save your work.



## Subheadings

- Go back to your previous work People and Culture in the Normal view.
- Select the subheading BRUNEI.
- Then click U to underline the text.
- This will distinguish the subheading from the body text.
- Repeat the steps for the other subheadings on this page.
- Save your work.

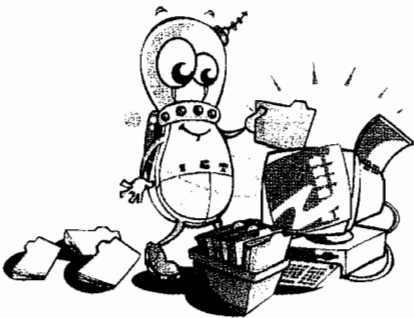


HTML coding

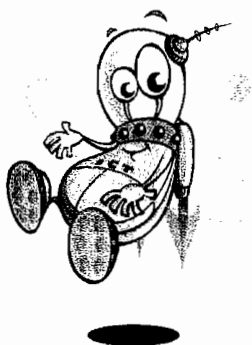
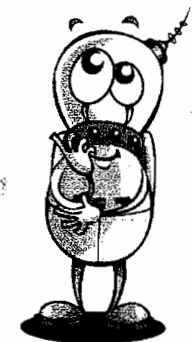
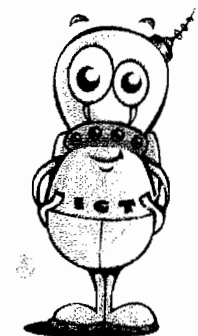
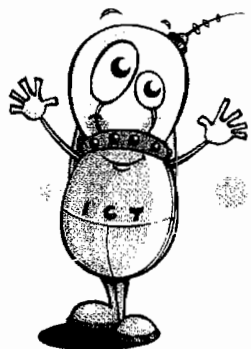
- Go back to your previous work Borneo in the HTML view.
- Print this page.
- In the Normal view, select the heading BORNEO.
- Return to the HTML view and list the HTML tags used to code this heading:

HTML tag	Used to code:

- Each HTML tag starts with a `<?>` and closes with the corresponding `</?>`.
- Highlight other tags used to code hyperlinks and images on your printout.



Glue your  
printout  
here!

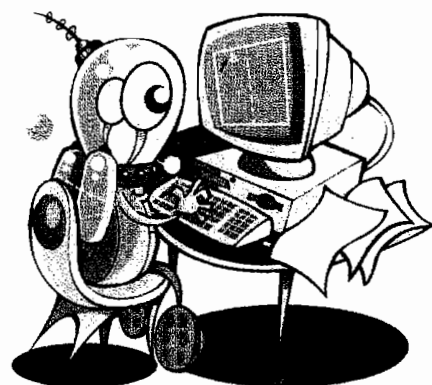


## Module 7

# Networks for a Purpose

### Learning Objectives

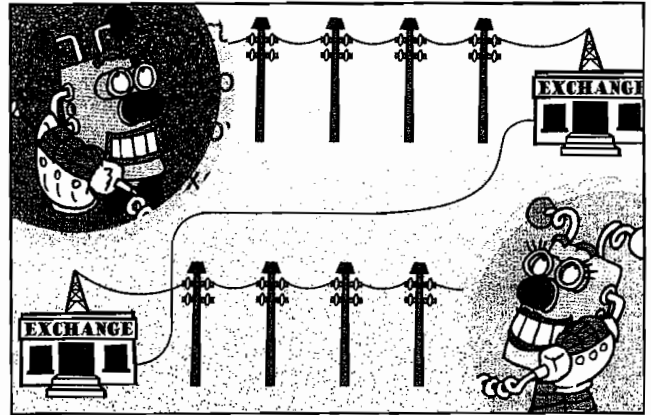
	Student is able to:	Pass/ Merit
1	Design a simple network	P
2	Identify the purpose and components of a network	P
3	Demonstrate understanding of management issues associated with networks	M
4	Understand network security issues	M





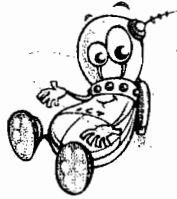
### What is a network?

- Networks come in all shapes and sizes.
- They have many different uses.
- Landline telephones are connected to the telephone network.
- Mobile phones are connected to a wireless network.
- Computer networks allow computers to communicate with other computers. You can use them to share scanners and printers.
- Email is a form of communication using a computer network.
- Instant messaging is another example of using a computer network.



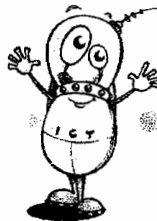
### What are the benefits?

*There are lots of advantages of using a network.*



- You can share scanners and printers with other people.

*Ten people can all share one printer.*



- You can share files with other people.

*Users on the same network can work on the same projects at the same time.*



- You can communicate with other people on your computer.



*Email means that you can send messages to, and receive them from, other people.*

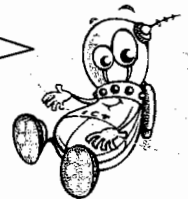
- One person or computer can back up everyone's files.

*You can keep information safe by archiving it automatically.*



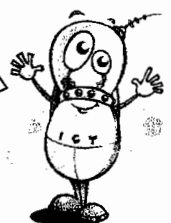
- One person can look after and install everyone's software.

*You can upgrade lots of people's software from one computer.*



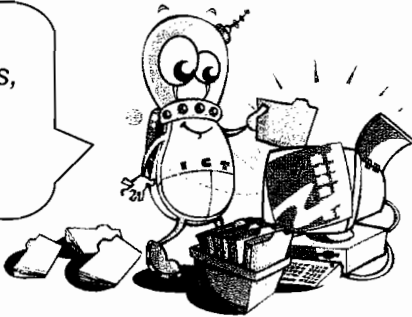
- One person can set up and look after important information. They can choose who can see the information.

*The people who need the important information can see it. People who don't need it can't.*



## What makes a network?

*A network is made of nodes, transmission media and hardware.*



### Nodes

- A node is a device on the network, e.g. a printer, scanner or workstation computer. It is a device that people interact with.

### Transmission media

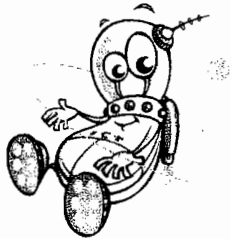
- Transmission media are the ways in which the parts of the network are linked.
- Networks have a path to pass information along. This can be a cable or a wireless link that joins the two devices.

### Network hardware

- Network hardware includes the devices used to connect all the nodes on a network.
- It provides network services such as print servers and file servers.

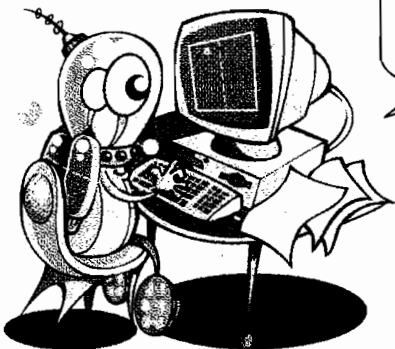
## Types of network

*There are two main types of network.*



- LANs or Local Area Networks are the networks that connect computers and network devices in a room or a building. They connect computers and network devices over short distances.
- WANs or Wide Area Networks are networks that cover a big area. They connect individual computers or LANs over big distances.

## Ask yourself



*What kinds of network are these? LAN or WAN?*

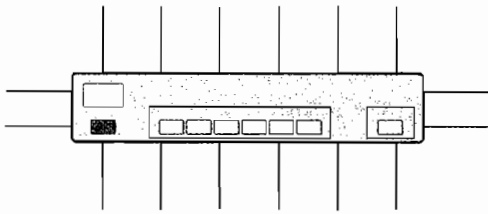
- Fifteen computers in an IT suite.  
\_\_\_\_\_
- The school network to networks in other schools in your area.  
\_\_\_\_\_
- Five IT suites in the same school each with their own network.  
\_\_\_\_\_
- The school IT Manager's home PC to their PC in the school office using the telephone network.  
\_\_\_\_\_

## Cables and wireless

- Just like telephone lines, computer networks use a variety of cables and ways to communicate.
- UTP (Unshielded Twisted Pair) cables are made from plastic-coated metal. Electricity can pass through them.
- Fibre optics are cables made from glass fibres. Light can pass through them.
- Wireless uses radio waves to pass on messages.
- Infrared devices use heat waves to communicate. Most TV control pads are infrared.

## Hubs

- A hub is a device that connects a network to several devices at once.
- Most hubs have 8, 16 or 32 sockets for the cable jacks to plug into.
- Hubs have a socket for connecting to other hubs or switches.
- A hub passes information it receives from one node to all the other connected nodes.



One hub can be connected to another hub to increase the number of nodes that can be joined together. In the most common networks, each cable has a maximum length of 100 metres. Hubs usually connect nodes in a small area, e.g. a single floor in an office block. They work best on networks where there is little network traffic.

## Switches

- A switch is a device that connects different sections of a network. Switches work in a similar way to hubs. They usually connect one hub to another hub.
- For example, they can connect the networks on each floor of a multi-storey office. Also, they make the network more efficient because they pass information only to the section of the network that needs it, rather than sending it to all the sections of the network.
- On busy networks with many hubs, the hubs are connected together using switches.
- A switch is a clever hub, really.

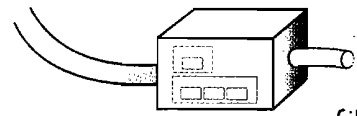
## Servers

- A server is a computer or device on a network that manages network resources.
- A file server is used to store critical data for retrieval. Any authorised user on the network can store and retrieve files on the server.
- A print server is a computer that controls one or more printers.
- A server acts as the communications gateway between many computers connected to it, responding to requests for information from client computers.
- A server is also used for managing network traffic.

## Routers

- Routers connect one network to another. For example, a router can connect the network of a company's office in one city to that in another city.
- The network of the company's head office in another city can have a router to connect it to the same network.
- This allows the two offices to communicate with each other.

copper cable



fibre optic cable

Routers can pass information from one transmission medium to a different one.

## Modems

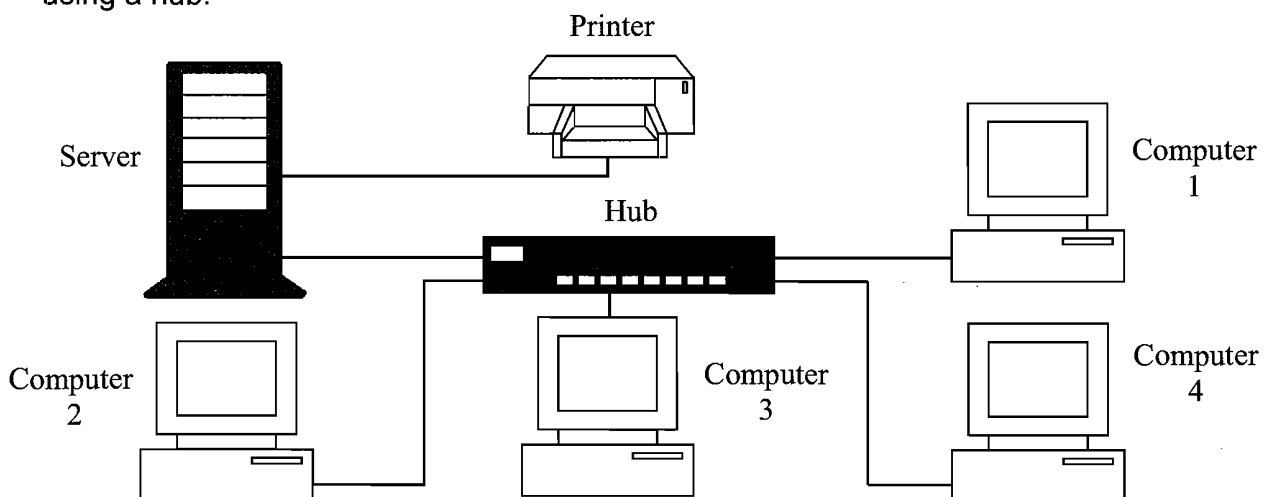
- A modem is a device that converts digital signals from a computer to analogue signals that you can send over a standard telephone line and vice versa.
- It connects individual PCs using the telephone network.

## Bandwidth

- Bandwidth is a measure of how fast a network is.
- A high-bandwidth network can pass a lot of information in a short time.
- A low-bandwidth network passes a smaller amount of information in the same time.

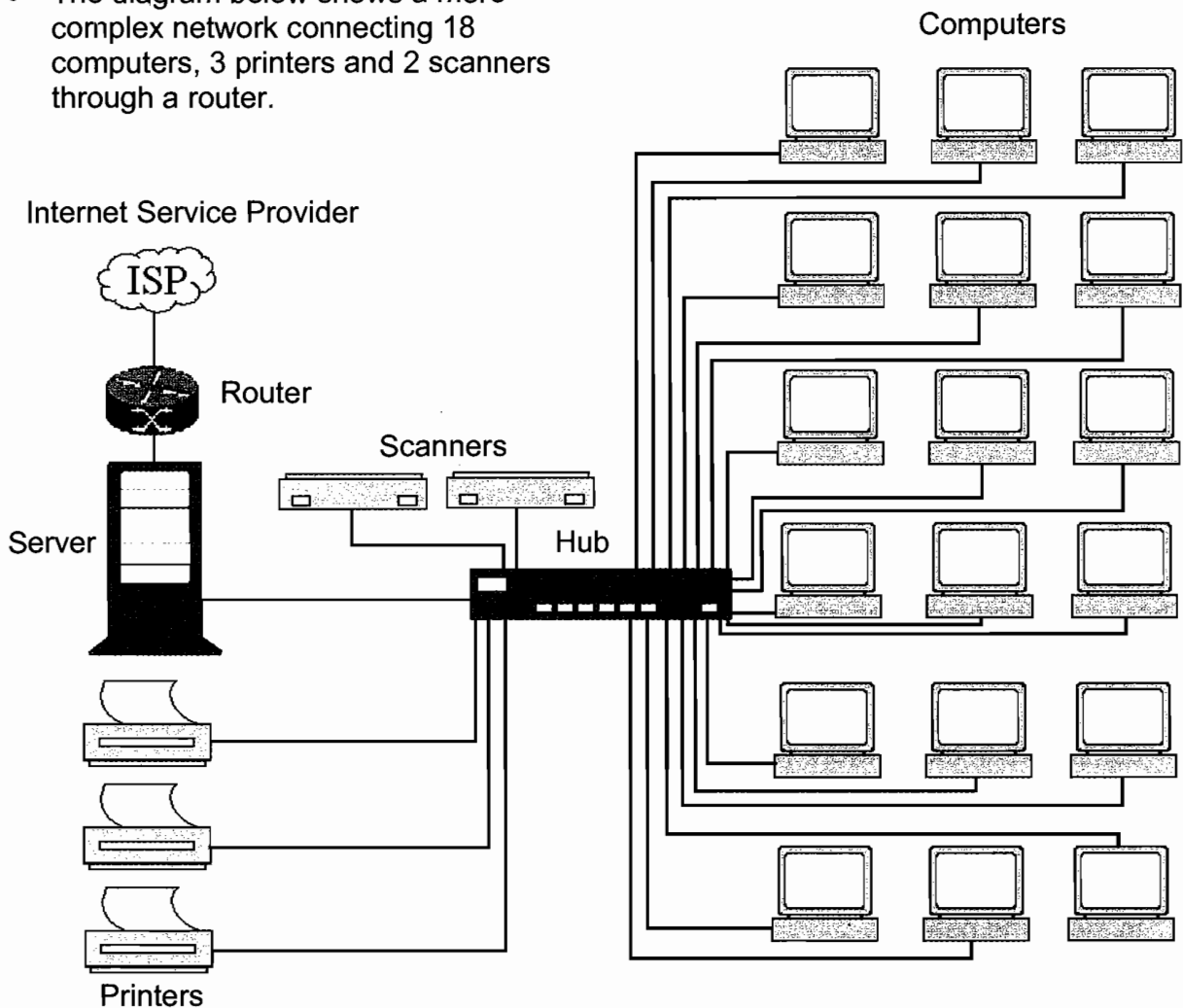
## Network diagrams

- A network diagram is useful in displaying the set-up plan of the network.
- The diagram helps to identify the additional hardware needed.
- The diagram also helps to diagnose faults in the network.
- There is software specially designed for drawing network diagrams. However, the autosshapes set in Microsoft Word, Microsoft PowerPoint (or any word processing or presentation software), with a few additional pieces of clip art, are sufficient for drawing simple network diagrams.
- When drawing the links between peripherals, try to keep the lines neat; use vertical or horizontal lines.
- The diagram below shows a simple network connecting 4 computers and 1 printer, using a hub.



## Complex networks

- The diagram below shows a more complex network connecting 18 computers, 3 printers and 2 scanners through a router.



## Network management

- A network manager is usually appointed to ensure the smooth running of the network.
- The work of the network manager includes:
  - Configuration management
    - installing new hardware such as printers and drivers
    - installing new software
    - installing new firewall, antivirus and antispyware programs
    - registering new users
    - extending the network system to new computers
  - Fault finding
    - checking to see if all nodes are present
  - Security
    - setting up user accounts, changing passwords, setting permissions to use network resources
    - regularly backing up important data and keeping the backups in a safe location

### Advantages of using a network

- What are the advantages of connecting the many computers and the printers using a network?
  - All users can share the same printer, thus saving the cost of buying individual printers.
  - The money saved can be used to buy different types of printer.
  - Each user can choose between the different types of printer.
  - Users can save files to one location, the server, which all can access and from which backups can be made.
  - Users can share files and information directly from their computers, thus saving time and money.
  - Space is saved.
  - Once the network is connected to the Internet, all computers can access the Internet with only one Internet subscription.

### Disadvantages

- There are disadvantages of using a network too:
  - Lack of privacy: one user can view and access the information stored in the other computers in the network.
  - Lack of safety: one user may change or destroy the data or information in the other computers in the network without prior permission.
  - If the network goes down, the shared equipment, such as printers, will not function – and therefore everybody on the network will be affected.
  - There is more chance of virus attack and hacker attack.
  - If one computer is attacked by a virus, it can spread quickly to all the other computers in the same network.
  - It can slow down the Internet-access speed.
  - Improper use of shared equipment may affect the work of the other users.

### Management issues

- To enjoy the advantages and to reduce the disadvantages, steps must be taken to improve network efficiency. The following are some suggestions:
  - Users should be given some basic training before they are allowed to use the network. This will reduce the misuse of certain shared equipment.
  - Assign a network manager to look after the network. If there is a network breakdown and the manager is also the technician, the maintenance can be done immediately. If the manager is not the technician, the technician can be contacted to repair the network as soon as possible.
  - Use reliable licensed software and equipment.
  - Ensure that the essential components and drivers are easy to access.
  - Regularly check all connecting cables.
  - Regularly service the printers and other shared equipment.
  - Saving all files to a central server allows for easier backups.
  - Having a central file server allows network managers to update system software from one place.

7.3 Assignment 1

Learning Objective: 1

Library network

- You are required to help design a simple network system for a school library with Internet connectivity, based on the following pieces of equipment and their respective locations.

No.	Equipment	Location
1	1 computer, 1 scanner	Main entrance of the library
2	1 computer, 1 printer	Head Librarian's room
3	3 computers, 1 printer	General Office

- What other hardware do you need to set up this network?

.....

.....

.....

.....

- Draw a network diagram to show how these need to be connected.

Network components

- For each piece of hardware describe what it does on the network.

Hardware	Function
Computer	Normally used by a single user for daily work such as word processing, keeping accounts, drawing and surfing the Internet.
Printer	Can be shared by users to print out hard copies of documents.
Scanner	

- The network has been connected but the Head Librarian complains that the network is not stable; she is not able to access the Internet or the printers from the General Office. Suggest two changes to your network to ensure its efficiency and reliability.

(1) Answer: .....

Reasons: .....

.....

(2) Answer: .....

Reasons: .....



## Safety and security

- In order to protect important data, here are some suggestions to help the network manager:
  - Install network-version virus-protection software in the network.
  - All users should be required to scan removable storage disks before they are used.
  - Use a log-in system. Every user is assigned an individual user name and password, and the entire log-in date and time should be recorded.
  - If necessary, use different passwords for access to different levels of the network system.
  - Set up a dial-up system for broadband Internet access. Only the manager and their assistants should be given the password to connect to the Internet.
  - Cultivate the habit of changing the password frequently.
  - Avoid using a shared-files folder; shared folders should be protected using passwords.
  - Computers should be in secure locations.
  - There should be regular backups of important data. The backup files must be kept in a safe place, preferably in a different building.
  - Only authorised persons are allowed to alter or install new software.
  - Consider using a firewall. This is a gateway to limit access between networks in the LAN to the WWW.
- Security measures vary from computer lab to computer lab. Write down any other suggestions that you think could improve the safety and security of the computer lab in which you work:

.....

.....

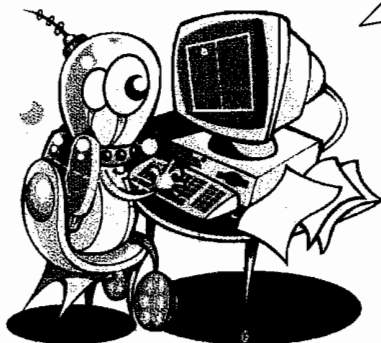
.....

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*Remember to  
change your  
password  
regularly.*



*Only authorised  
persons are  
allowed to access  
the network.*

7.4 Assignment 2

Learning Objective: 1

Computer lab network

- You are required to help design a complete network system for a school computer lab with Internet connectivity, based on the following pieces of equipment and their respective locations.

No.	Equipment	Location
1	20 computers	Main Computer Lab
2	1 computer, 1 printer, 1 scanner	Chief Supervisor's Office
3	1 computer, 1 printer	Principal's Office

- What other hardware do you need to set up this network?  
.....  
.....  
.....  
.....
- Draw a network diagram to show how these need to be connected.

Hardware purpose

- For each piece of hardware describe what it does on the network.

Hardware	Function
Computer	Normally used by a single user for daily work such as word processing, keeping accounts, drawing and surfing the Internet.
Printer	Can be shared by the users to print out hard copies of documents.

- The network has been connected but the Principal complains that the network is not stable; he is not able to access the Internet or any computer from the computer lab. Suggest two changes to your network to improve its efficiency and reliability.  
  
(1) Answer: .....  
Reasons: .....  
.....  
  
(2) Answer: .....  
Reasons: .....  
.....

**Safety**

- In order to protect important data in the library system, suggest 5 actions that the network manager should take.

(1) Action: .....

Reasons: .....

.....

(2) Action: .....

Reasons: .....

.....

(3) Action: .....

Reasons: .....

.....

(4) Action: .....

Reasons: .....

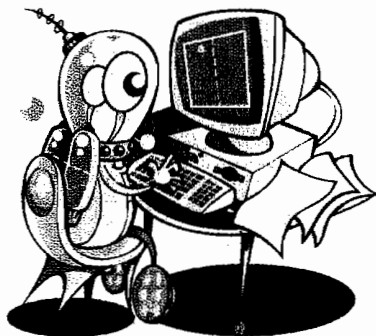
.....

(5) Action: .....

Reasons: .....

.....

See page  
47.

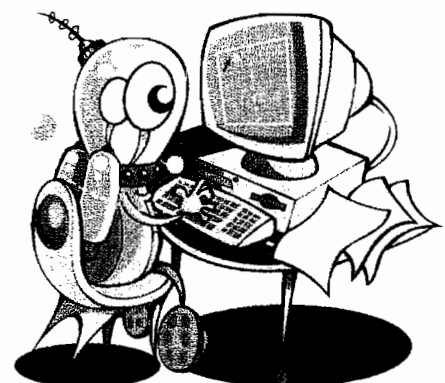
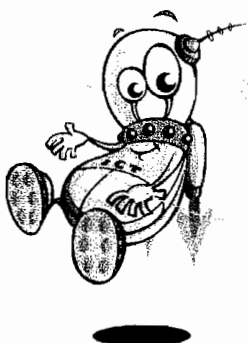
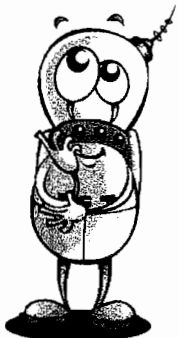
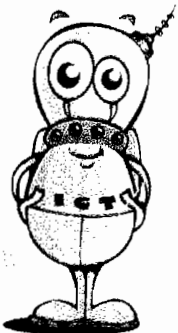
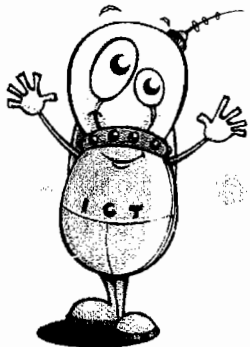


## Module 8

### Video or Animation for a Purpose

#### Learning Objectives

	Student is able to:	Pass/ Merit
1	Plan video or animation	P
2	Create source material for video or animation	P
3	Produce video or animation with appropriate software	P
4	Add soundtrack or narration to video or animation	M
5	Demonstrate awareness of how the finished media text addresses a specific audience	M



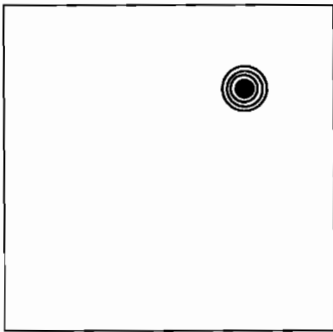
## 8.1 Animation

Learning Objective: 1

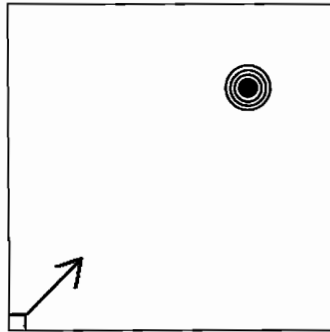
### Planning

- Animation is a series of graphics that simulate movement when viewed in sequence. The format of the graphics can depend on the software used.
- There is plenty of shareware and purchased-graphic software that can be used to produce animation.
- As with any other work, initial planning is very important.
- The initial planning or “storyboard” can be drawn freehand.
- Use any graphics software to draw the graphics.
- The next section is a sample storyboard. Use this as an example to create your first animation project.

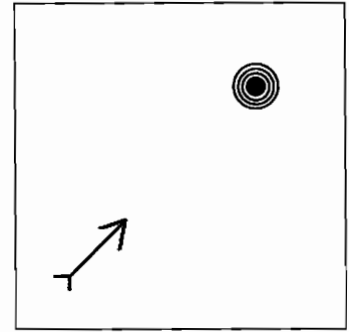
### Bullseye (storyboard)



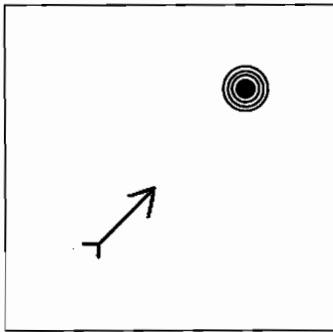
Arrow 1



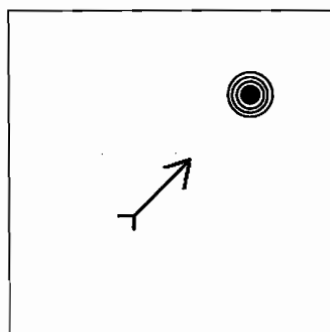
Arrow 2



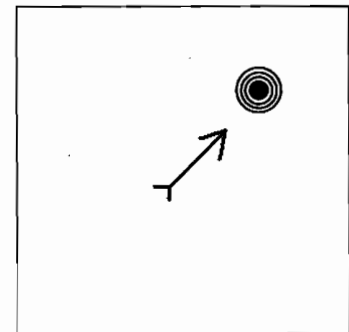
Arrow 3



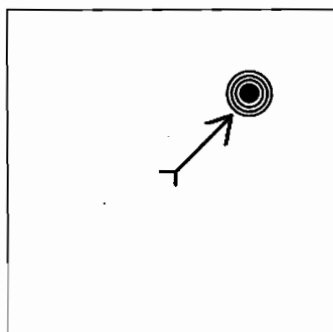
Arrow 4



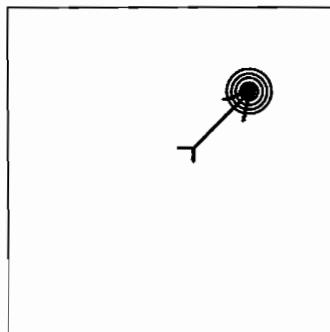
Arrow 5



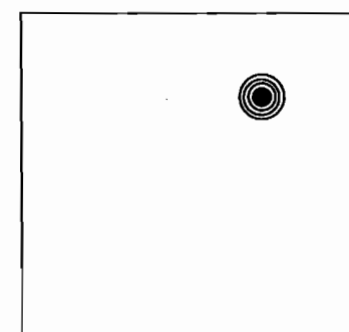
Arrow 6



Arrow 7



Arrow 8





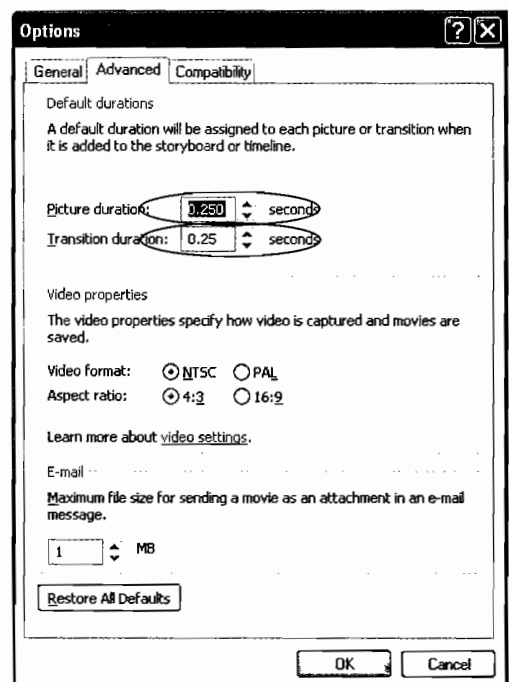
Arrow 9

## Preparing the graphics

- There are 9 pictures on the storyboard on the previous page.
- Use any graphics software (e.g. Microsoft Paint) to create the pictures. Notice that pictures 1 and 9 are identical.
- When you begin drawing the pictures, draw the Arrow 1 picture first.
- Save it as arrow1.
- Save it again as arrow9.
- Add the arrow and save it as arrow2.
- Move the arrow further up and save it as arrow3.
- Similarly, by moving the arrow towards the bullseye, create the rest of the graphics: arrow4, arrow5 ... arrow9.
- Drawing the pictures this way will ensure that the bullseye remains at the exact position.
- This is important so that it will stay at the same position throughout the animation.
- Load Windows Movie Maker to create the animation.
- You can use other gif animators to create the animation too.

## Windows Movie Maker

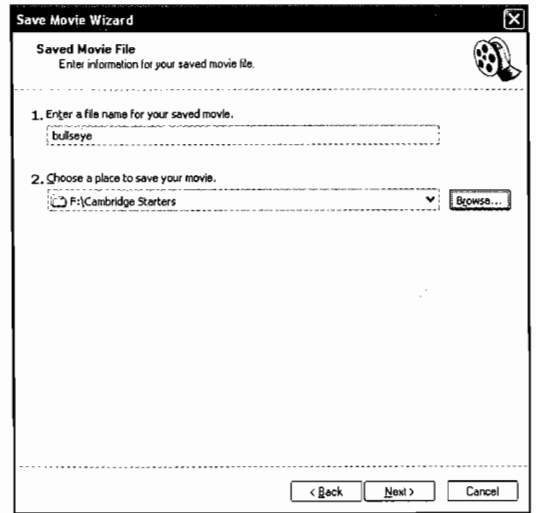
- Load  Windows Movie Maker.
- Click **File**.
- Select **Import into Collections...** **Ctrl+I**.
- Go to the directory where you saved graphics and select all the pictures: arrow1, arrow2, ... arrow9.
- Click **Import**.
- Before you drag and drop the pictures into the storyboard, it is best to check the default setting of the duration.
- For the initial trial, set the picture duration and transition duration to 0.25 seconds.
- Click **Tools** and select **Options...**
- Change the picture duration to 0.25 seconds.
- Change the transition duration to 0.25 seconds.
- Click **OK**.
- Drag and drop each of the pictures from arrow1 to arrow9 in the correct order into the storyboard.
- On the right-hand side is the preview window.
- Click  to see the effect of the animation.
- Click **File**, select **Save Project As...** **F12** and save the project as bullseye.mswmm.
- If the duration is not suitable, you can start again by first removing the pictures from the timeline.
- Click **Edit** and select **Clear Storyboard** **Ctrl+Del** to remove the entire picture at the timeline.
- Try a few different durations until you find the one that you think is most appropriate.



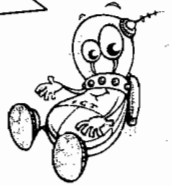
## 8.2 Creating animation

### Making the movie

- When you have found the most appropriate duration for the animation, save the project again.
- To finalise the animation, you need to make it into a movie which can be viewed using the Microsoft Media Player.
- Click **File** and select **Save Movie File...** **Ctrl+P**.
- Select **My computer** **Save your movie for playback on your computer.**
- as the location. Click **Next >** to continue.
- Type bullseye as the filename.
- Browse for your directory or folder to save the file and click **Next >** to continue.
- Accept the option and click **Next >** again to go to the next dialog page.
- Click **Next >** and the computer will start creating the movie.
- If you want to view the movie created immediately, click **Finish**; otherwise uncheck the option before you click **Finish**.



The process of converting a series of images and sounds into a single movie file is called 'rendering'.



### Dropping ball

- Use drawing software like Microsoft Paint to draw the following pictures of balls.
- Save them as ball1, ball2, ball3, etc.
- Use these pictures to produce an animation of a ball dropping.
- Try different duration times and choose the most appropriate duration for your animation.
- Save the project as dropping\_ball.
- Save the movie file as dropping\_ball.



Ball 1



Ball 2



Ball 3



Ball 4



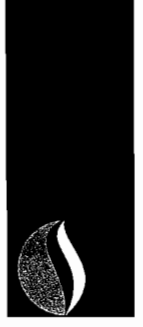
Ball 5



Ball 6



Ball 7






Ball 8

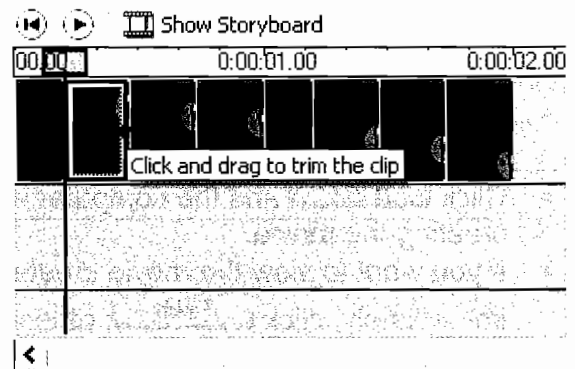


## Bouncing ball

- Open the project file dropping\_ball.
- Rearrange the sequence of the pictures on the storyboard to ball2, ball4, ball6, ball8, ball7, ball5, ball3, ball4, ball6, ball8, ball6, ball4.
- Save the project file as bouncing.
- Preview the animation and adjust the duration so as to produce a bouncing ball.
- Save the movie file as bouncing.

## Changing the duration

- Instead of redoing the entire layout, you can change the duration for each individual picture.
- On the bottom panel, click  Show Timeline to display the timeline.
- Click  a few times to zoom in on the timeline.
- Click and drag at the edge to increase or decrease an individual frame of the picture.
- Instead of clicking  to play the animation movie, you can just press and hold the space bar to play it.
- If you hold the space bar long enough, the animation will repeat itself until the space bar is released.



## More animation

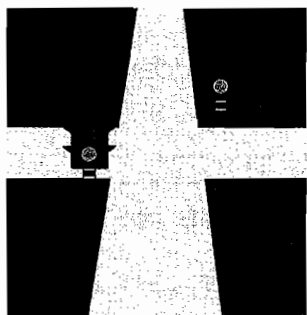
- Choose one of the following topics or any topic of your own choice to create a new animation:
  - Football – penalty kick
  - Golf – the final stroke
  - Flying bird
- Use the space provided on the next page to plan the storyboard. You may use freehand drawing for the storyboard.
- Use a simple graphics software to create the graphics.
- You must create at least 5 different pictures.
- Write a brief description of what each frame is expected to show.
- Create the project file and save it as *your name* animation.
- Create the movie file and save it as *your name* animation1.

Drafting

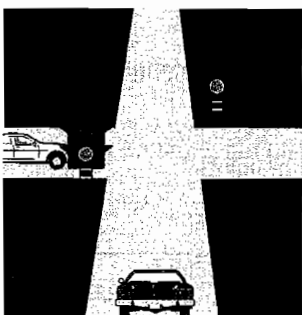
- Use this page for your draft storyboard. You may use freehand drawing for the draft.
- Give a brief description of each frame.


Crossroads

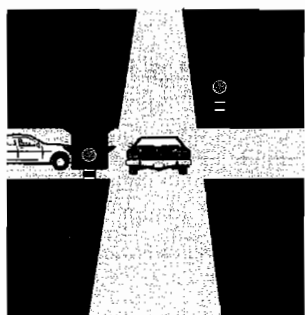
- The following are the drafts of a new animation on crossroads.



The traffic lights indicate green and the cars coming from the north-south direction may pass.



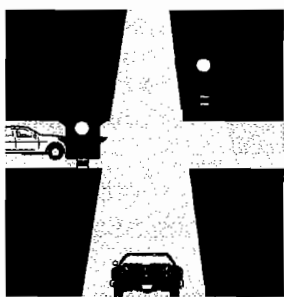
The approaching blue car continues its journey; the white car comes to a stop.



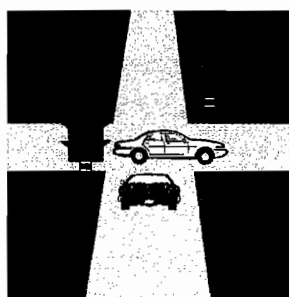
The blue car crosses the road.



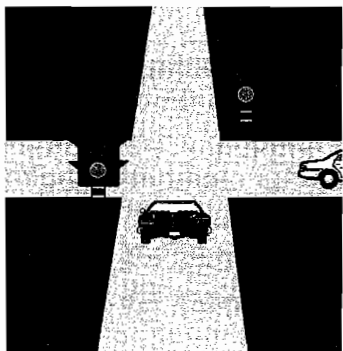
The blue car continues past the crossroads.



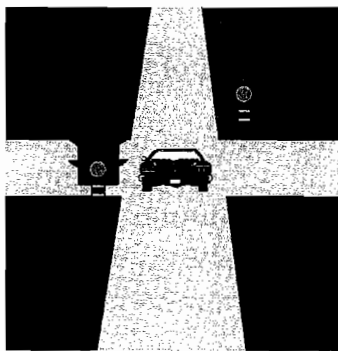
The traffic lights change to yellow. The approaching red car prepares to stop; the white car prepares to cross in the east-west direction.



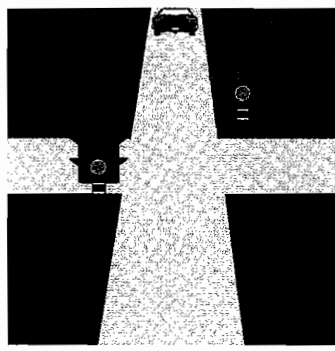
The red car stops and the white car crosses the road.



The white car has crossed the road and the traffic lights change to green again.



The red car crosses the road.











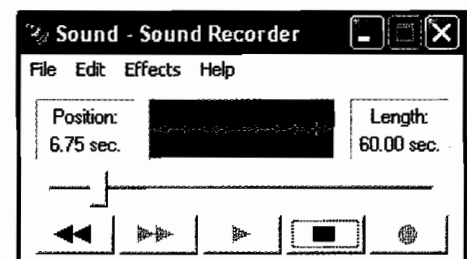
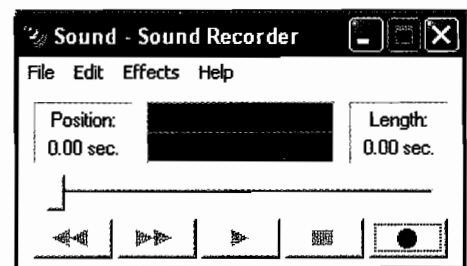
The red car continues past the crossroads.

## Creating the animation


- As in the previous section, before you create the animation you need to create the pictures.
- Think of your target audience and ensure that your creation meets its purpose. Improve your creation if necessary.
- You can draw or simply import scanned pictures of the cars.
- Use Movie Maker to create the project file crossroads.
- Adjust the duration of the pictures appropriately.
- Create the movie file crossroads.
- Play the animation a few times and see how you can improve it.
- If you need to improve the animation, you can only alter the project file and not the movie file.
- Make comments on whether the colours used are appropriate for your target audience.
- Make comments on the sequence of the pictures and suggest ways to improve the animation.

## Audio files

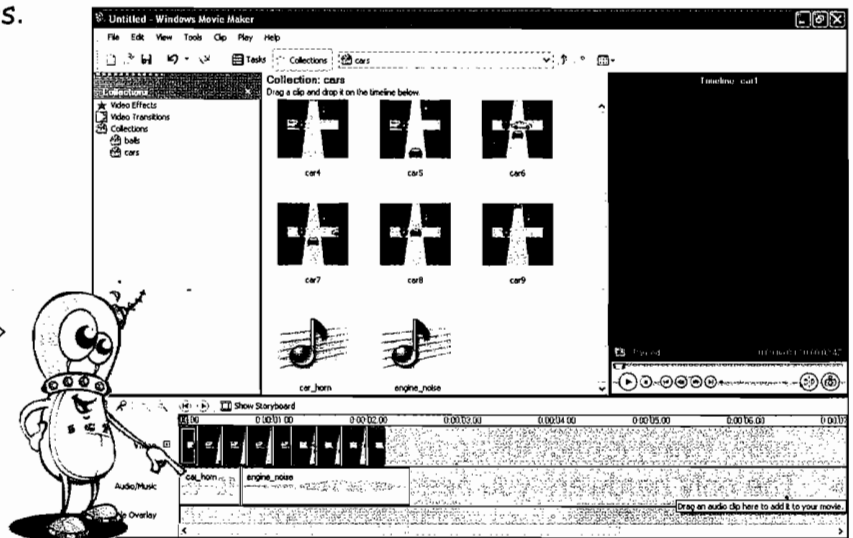
- Audio files such as MP3 (mp3), Windows (wav) and MIDI (midi) can be imported into the movie to enhance audio effect.
- You can search Internet sites, such as the Microsoft Office Online – Clip art and media homepage, to download free audio files.
- Alternatively, you can record the audio files yourself using any suitable software and hardware.
- Microsoft Windows XP provides a simple recording tool to record sound in the Windows audio (wav) format for up to 60 seconds.
- The only hardware you need is a microphone.
- Click , select **All Programs**, select  Accessories, select  Entertainment and select .
- Click  to start recording.
- Click  to stop recording.
- Click  to replay the recorded sound.
- Click **File** and select **Save As...** to save the recorded sound in wav format to the desired folder.
- Click  again to continue recording.
- To start a new recording, click **File** and select **New**.



## Inserting audio files

- Inserting relevant audio files will make the animation more interesting.
- Click **File** and select **Import into Collections...** **Ctrl+I**.
- Import one or two audio files related to moving cars, such as sounding the horn.
- The audio files could be the sound you have recorded or suitable files downloaded from the Internet.
- On the bottom panel, click  **Show Timeline** to change it to the timeline mode.
- Drag and drop the audio files you have imported.
- Adjust the duration of the sound file in the same way that you adjust the duration of an individual picture.
- Play the animation.
- Do you think the audio files improve the quality of the animation and make it more interesting and appealing to the audience?
- Try different audio files to find the most suitable ones for the animation.
- Save the project file as cars.
- Create the movie file cars.

*These are the sound files. Do you think they are appropriate and make the animation more interesting?*



## Review 1

- Refer to your creation crossroads on the previous page.
- Assuming that your target audience are adult road users, explain how the animation you have created fits its purpose and is suitable for its target audience.

Examples:

- what is the purpose of the animation?
- are the colours used appropriate?
- are the pictures relevant and attractive?
- have the pictures served their purpose?
- is the music suitable for the purpose?
- is the sequence and timing suitable?
- has the animation made clear its purpose to the audience?

(These are just some suggestions; you do not have to answer all the questions. At the same time, you can add any other comments you think appropriate and which indicate that you are aware how your animation can address your target audience.)

**Review 2**

- Imagine that you want to present the same animation to a group of primary-school children who are not very familiar with traffic lights.
- Explain what you would change. Give reasons for any changes that you would make.
- Consider the colours, pictures and audio files. What improvements would you make so that the animation is more relevant and attractive to the young audience?

Answers for Review 1:

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Answers for Review 2:

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Planning

- Instead of using pictures to create an animation, students can use video clips to prepare a movie.
- The preparation is similar to that for animation.
- First, prepare a storyboard.
- Describe the series of video clips you will be preparing.
- Add in the duration for each video clip that you intend to capture.
- Include also the effect on the video clip, transition and caption that you may use.
- Be very clear who your target audience is and how you would make your video appropriate for your audience.

A sample storyboard

- You have been working on a video project to promote a tourist attraction in your area – a waterfall, to adult visitors, based on the following storyboard.

Clip 1

Video clip or still photos showing the route leading to the site.

Clip 2

The source of the water.

Clip 3

The main scene – the great waterfall.

Clip 4

A close-up scene of the waterfall showing crystal clear water.

Video clip title	Duration (seconds)	Effect on video clip	Transition to next video clip	Caption (if used)
Route	16	Fade out, To white	Bars	After crossing the bridge, the magnificent waterfall is just a few metres away!
Source of water	13	None	Checkerboard, Across	The source of the water comes from a height of more than 1000 metres.
The great fall	16	None	Dissolve	The height of the fall is 30 metres!
Close-up	10	None	Fade	Crystal clear water!

### Shooting the clips

- You can shoot the actual scene by using a digital camera or a video camera.
- The format of the video clip depends on the type of camera and software that you use to process your video clips.
- Make sure you use a format that is supported by the software you will be using to produce the movie.
- If you are using Microsoft Movie Maker, it supports the following video files: .asf, .avi, .m1v, .mp2, .mp2v, .mpe, .mpeg, .mpg, .mpv2, .wm and .wmv.
- However, if your video files are not in the list above, there are many types of software available for converting them to one of the above supported formats.
- For exercise purposes, try to use the mpg, mpeg or wmv format.
- The avi format may give high quality output but the movie file produced will be very much bigger. It also uses a lot of RAM.
- Make sure you have enough hard-disk space (4 GB or more) and RAM (at least 512 MB) before you process the video and do the final movie. Insufficient memory will slow down your computer or even cause your computer to stop functioning normally, so you will not be able to complete the task of making the final movie.

### Tripod

- A tripod is a very useful accessory for capturing video.
- A tripod will help to keep the video camera still and thus prevent your recorded video from being jittery.
- A remote-control tripod lets you control the camcorder without having to press buttons on the camera itself; you are less likely to jiggle the camera as you start or stop the recording, or operate the zoom lens.
- This can be a real help in achieving smooth, professional-looking pans and tilts (when you capture a moving object by following it or by slanting the camera at an angle).
- It also improves the overall quality of the recorded video.

### Tips to improve quality of video

- Always use a still background when recording video.
- If you need to record against a moving background, try reducing the depth of field.
- You can also make the background go out of focus by using a lower level of light and by moving the subject closer to, or further away from, the lens.
- You can zoom in or take more close-up shots to avoid the moving background.
- You must provide adequate lighting; use soft light, diffuse (evenly distributed light) and consistent light levels.
- Avoid direct high-contrast lighting.
- If possible, the colours of the clothing that your subjects wear should complement their skin tone and be sufficiently different from the background or overlapping objects.
- Avoid bright colours, which tend to bleed or spread outside an object.
- Avoid stripes; these often create wavelike patterns, especially when the subject is moving slowly.

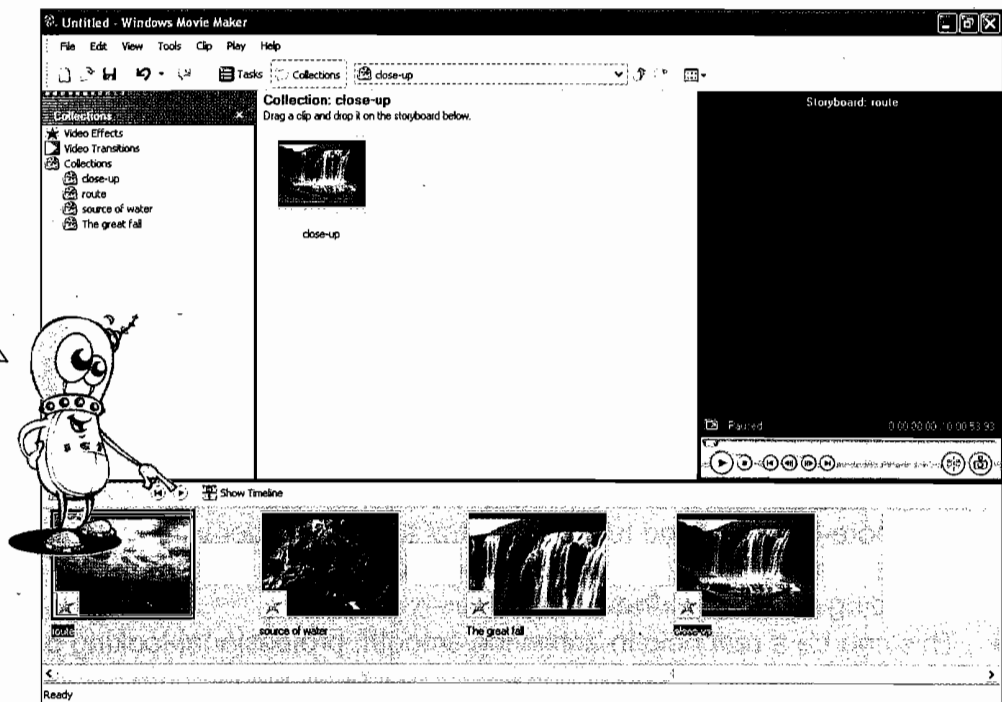


## 8.6 Editing video

Learning Objective: 3

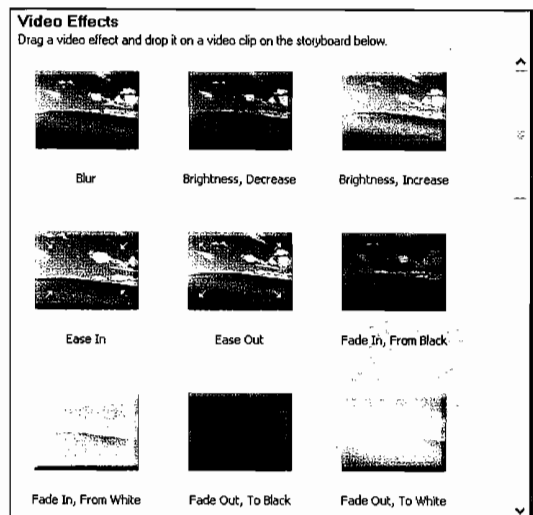
### Importing video clips

- Click **File**, select **New Project** **Ctrl+N**.
- Click **File**, select **Import into Collections...** **Ctrl+I**.
- Select route.mpg and click **Import** to import the video clip into the collection pane.
- Repeat the process to import source of water.mpg, The great fall.mpg and close-up.mpg into the same collection.
- Click **Render** on top of the storyboard to render the movie.




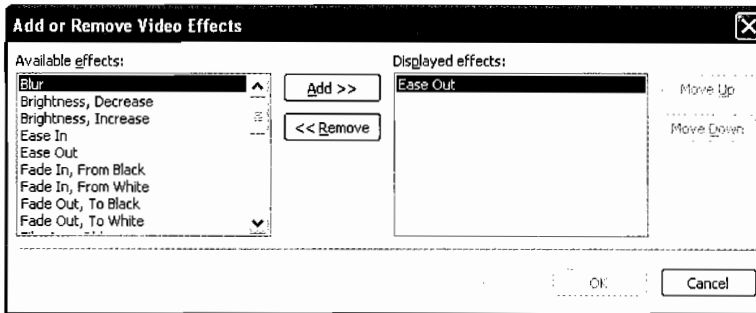
### Video effects

- Use the video effect provided to add special effects to your movie.
- A video effect is applied for the entire duration that the video clip displays in your movie.
- You can add any of the video effects that appear in the Video Effects folder in the collections pane.
- Click **Tools**, select **Video Effects** to display the Video Effects folder.
- Select the video effect that you would like to include in the video clip that you have imported, by dragging it into the video clip on the storyboard.
- Click **Render** on the storyboard menu bar to render the movie to preview the effect.



### Removing the effect

- If you have just added the video effect, you can remove it by clicking the undo button,  or click **Edit** and select **Undo Add Effect** **Ctrl+Z**.
- You may also right click on the clip on the storyboard, select **Video Effects** to obtain the following dialog table:



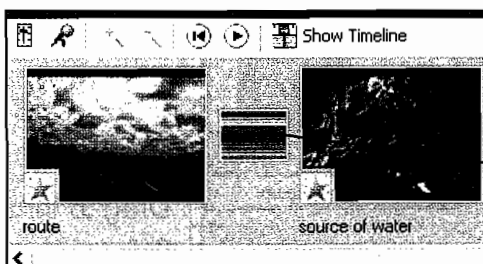
- Click **<< Remove** to remove the displayed effects.
- Or pick from the list of available effects and click **Add >>** to add the effect.

### Saving the project

- Save your project before you proceed.
- Click **File**.
- Click **Save Project As...** **F12**.
- Save your project as *Your Name* movie project.

### Adding transitions

- Transitions control how the movie plays from one video clip to the next.
- You can add a transition between any two video clips on the storyboard.
- The transition will start to play before one clip ends and while the other clip starts to play.
- If no transition is added, there will a straight cut between the two clips.
- The transition that you have added will appear on the transition track of the timeline.
- You must expand the Video track if you want to view the track.
- To add a transition, click **Tools** and select **Video Transitions** to open the Video Transitions folder in the collection pane.
- Choose the transition, drag and drop it between two clips on the storyboard.






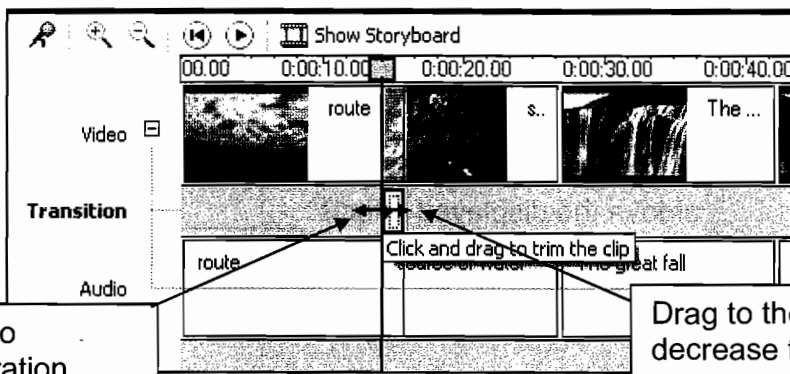
Video transition inserted

## 8.8 Adding audio files

Learning Objective: 4

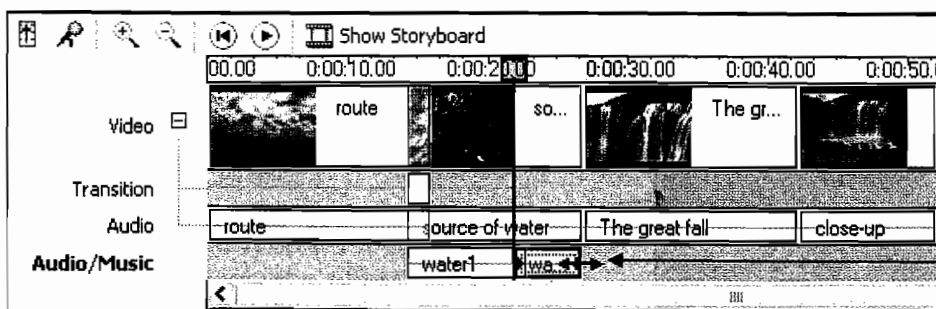
### Editing the duration of transitions

- Insert two more transition styles.
- Click  to preview the effect of the transitions.
- If you want to remove a transition, click on the transition and tap the delete key .
- Click  to save the project using the same filename before you proceed.
- You can change the duration of a transition.
- On the Transition track of the timeline, drag the beginning of the transition towards the beginning of the timeline to increase the transition duration.
- Drag the beginning of the transition towards the end of the timeline to decrease the transition duration.



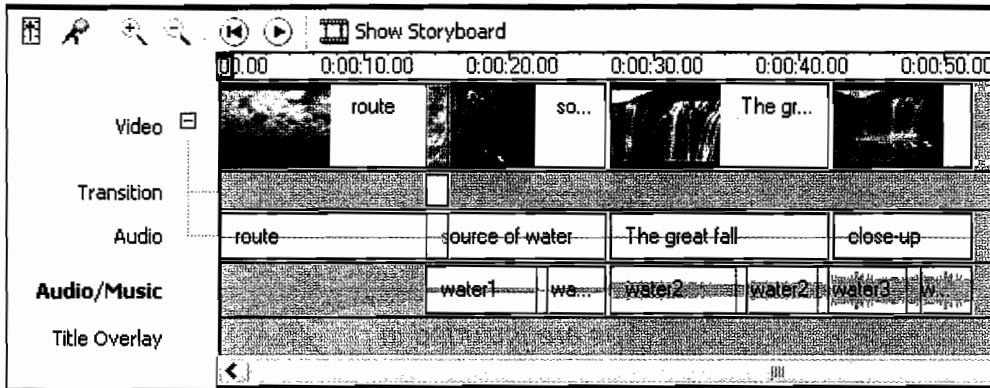
### Background audio files

- Since we are showing a waterfall, if we can add some sound effects related to a waterfall, the movie created will be more realistic and attractive. This will also help to fulfil our aim of promoting the tourist site to our audience.
- To import the music files, click **File**.
- Click **Import into Collections...** **Ctrl+I**.
- You can import your own files or use the music files provided: water1.wav, water2.aif and water3.wav.
- Drag water1.wav to the Audio/Music track.
- Position the left side so that it aligns vertically with the left margin of the video clip source of water.wmv.
- As the music is too short, add another copy of water1.wav and position the two music clips side by side.
- Drag the right border of the second music clip to reduce its length as illustrated below:




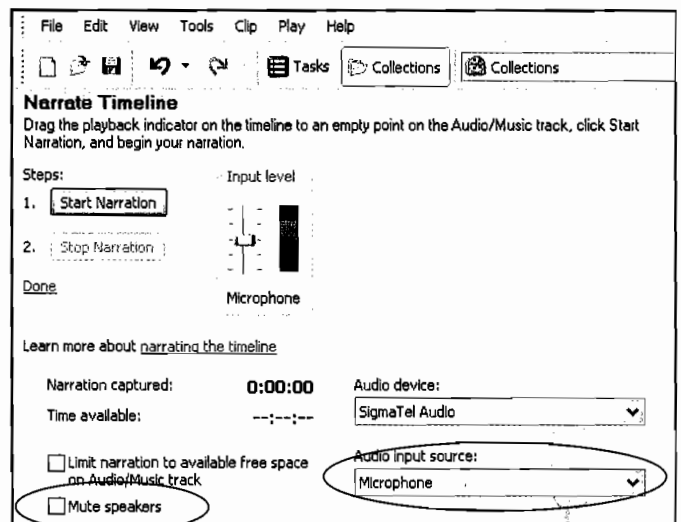
### More music

- Similarly, insert two copies of water2.aif and two copies of water3.wav.
- Adjust the duration to synchronise with the length of the video clips, The great fall.wmv and close-up.wmv, respectively.
- Render the entire movie to check the effect.
- Save the project as movie project with music.




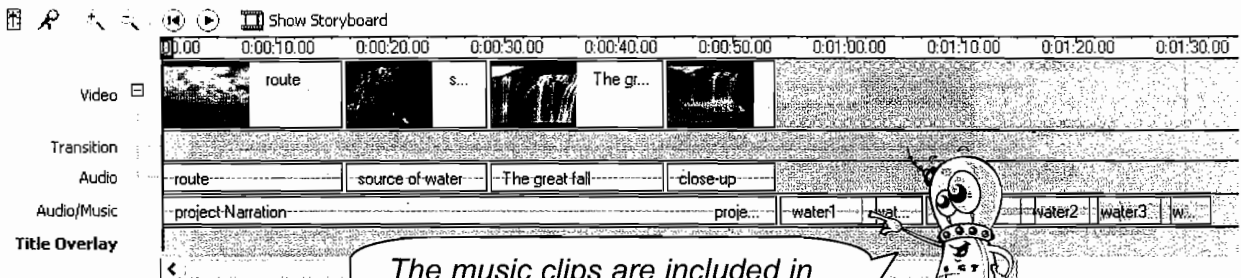
### Narrating the timeline

- You can enhance your movie by capturing an audio narration which lets you describe, in your own words and voice, what is displayed in the video.
- Before you can begin capturing an audio narration:
  - The playback indicator on the timeline must be at a position where the Audio/Music track is empty.
  - You must be in the timeline view.
- Click  on the storyboard/timeline menu bar to display the narration option.
- Prepare what you want to describe about the movie.
- Select Microphone as the audio input source.
- Check the Mute speakers option to avoid recording the background music.
- Click **Start Narration** to start recording.
- Click **Stop Narration** to end the recording.
- Save your recording as **Your name** narration.
- You may need to try a few times to adjust to the right timing.
- Render the movie.
- Save your project as movie with narration.



## Narration with background music

- You can capture your narration without muting the speakers, so that the background music will be recorded.
- After you have done the narration, check the track for music in the storyboard pane. You will find that the positions of the background music will be pushed to the right.
- Since the background music has been recorded, you can remove them from the music track.
- Click  to save the project using the same filename.



*The music clips are included in the narration and are no longer needed. Remove them.*

## Titles and credits

- To further enhance your movie, you can add titles and credits manually.
- Click **Tools**, select **Titles and Credits...**
- You are given five options, pick one and click on the hyperlink to proceed.

### Where do you want to add a title?

Add title at the beginning of the movie.

Add title before the selected clip in the timeline.

Add title on the selected clip in the timeline.

Add title after the selected clip in the timeline.

Add credits at the end of the movie.

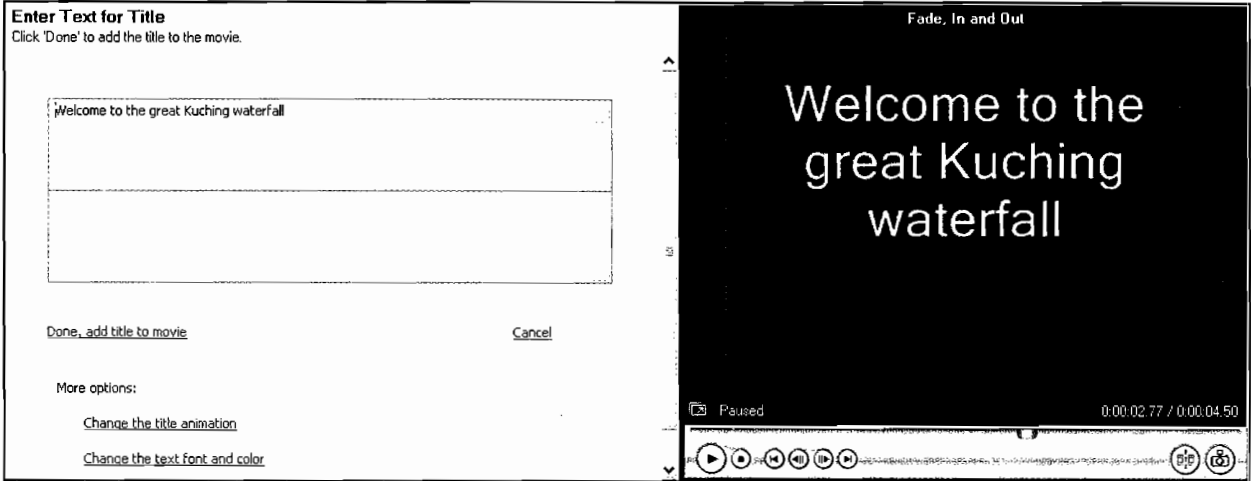
Cancel

## 8.10 Titles and credits

Learning Objectives: 1, 2

### Title at the beginning

- Click at [title at the beginning](#).
- Type the title *Welcome to the great Kuching waterfall*.
- As you type, you can see a preview on the right-hand side.



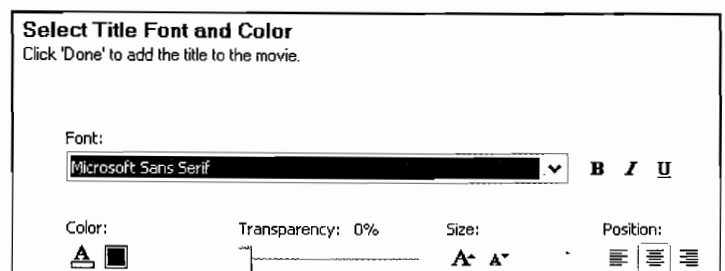
### Change the title animation

- Click [Change the title animation](#).
- Select from the list for a suitable animation.
- Watch the preview on the right-hand side as you scroll up and down.

Name	Description
<b>Titles, Two Lines</b>	
Fade, In and Out	Fades in, pauses, fades out
Fly In, Fades	Flies in from left, pauses, fades out
Fly Out	Fades in, pauses, flies out right
Fly In, Fly Out	Flies in from left, pauses, flies out right
Moving Titles, Layered	Transparent overlapping titles
Exploding Outline	Zooms in, outline explodes off screen

### Change the text font and colour

- Click [Change the text font and color](#).
- Choose the font, font style, font size, colour and position.
- Click [Done, add title to movie](#) to add the title to the movie at the beginning.
- This will automatically add a new frame at the beginning of the movie.
- Save your project as movie with title.



8.11 Other titles

Learning Objectives: 4, 5

Title on the selected clip

- Let us add another title.
- Select the clip close-up.
- Select [Add title on the selected clip](#) in the timeline.
- Add the title as *Crystal clear water!*
- Click [Change the title animation](#) and select an appropriate animation.
- Click [Change the text font and color](#).
- Choose the appropriate font, font style, font size, colour and position.
- Click [Done, add title to movie](#) to add the title to the clip selected.

Credits at the end

- This is to add a new frame to record the credits of the movie.
- Use this to show your appreciation of those who have helped you in one way or another.
- Include your name and school and the date of creation.
- The layout for typing the text is slightly different.
- Watch the preview for the animation, font, font style, etc. on the right-hand side.

The End	
Thank you for watching	
Presented by Your Name	Director
Your School	Producer
Centre Number	
Year	

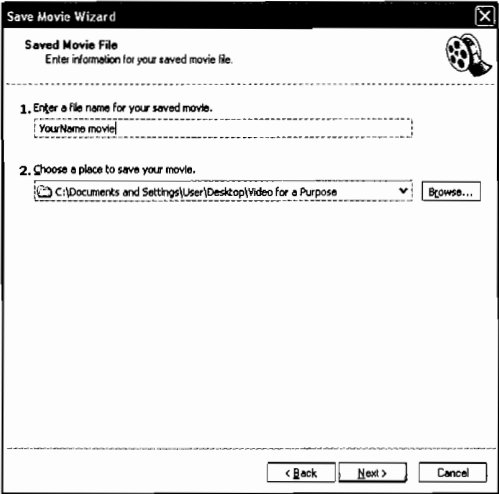
- You can also click [Change the text font and color](#) to choose the appropriate font, font style, font size, colour and position.
- Click [Change the title animation](#) and select an appropriate animation from the list under Credits.

Name	Description
<b>Credits</b>	
Credits: Scroll, Up Stacked	Paired stacked credits scroll up
Credits: Zoom, In	Paired credits zoom in
Credits: Fade, In and Out	Paired credits fade in and out
Credits: Scroll, Up Side-by-Side	Paired credits scroll up side-by-side
Credits: Mirror	Paired credits fly in from both sides
Credits: Exploding	Paired credits zoom in and outline explodes off s...
Credits: Fly In, Left and Right	Paired credits fly in from left and right

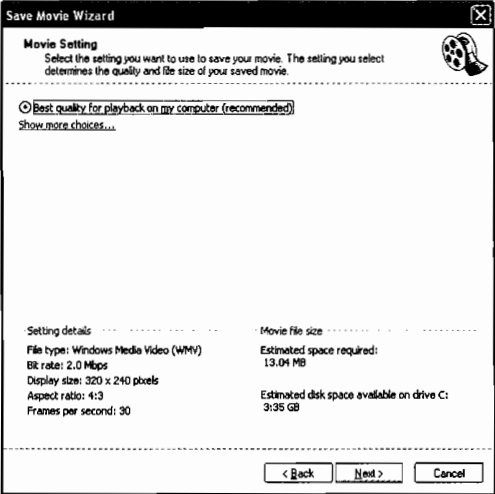
- Click [Done, add title to movie](#) to add the title to the end of the movie.
- Render the movie a few times.
- Show it to your teacher, your friends and discuss how you can improve your movie.
- Save your project as *Your Name* movie with titles and credits.

Create the final movie

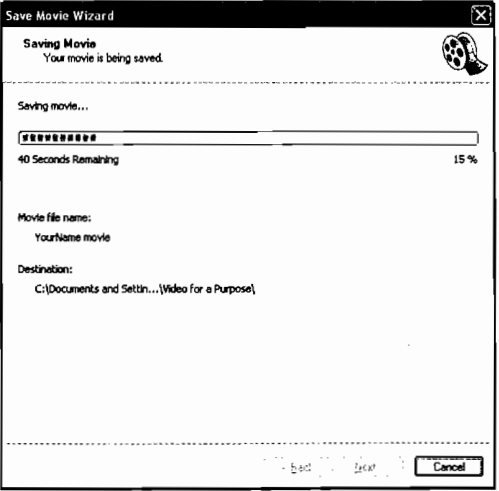
- So far we have been saving a project which can be opened and edited.
- If you save it as a movie, it cannot be edited.
- Should you find any mistakes, you will need to edit the project file and save it as a movie again.
- Click **File**.
- Select **Save Movie File...** **Ctrl+P**.
- Select **My computer** **Save your movie for playback on your computer.** and click **Next >**.
- Enter the file name as **Your Name waterfall movie** in your own folder or any folder specified by your teacher.
- Click **Next >** to accept the recommended quality.
- Wait for a while for the saving to be completed.
- You have the option to play the movie immediately using your default video player.
- Uncheck the option if you wish to play it later on.



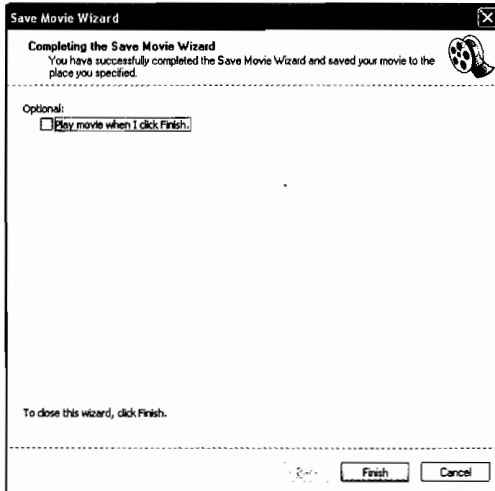
Type a filename and select a location to save the movie.



Click **Next >** to accept the recommended quality.



Wait ...



Clear the check box if you want to play the movie later.



8.13 Assignment

Learning Objectives: 1

New project

- A friend from Vietnam wants to bring his parents to visit you next month. He has requested you to make a short movie of your home town. His parents are very keen to preview some of the tourist attractions, especially those connected with the costumes and culture of the local people.
- Use the following boxes to plan a storyboard of at least 4 scenes and prepare your video clips based on your storyboard.

Scene 1

Scene 2

Scene 3

Scene 4

Planning the movie

- Use the table below to plan your final video or movie.

Video clip title	Time (seconds)	Video effects (if used)	Transition (if used)	Caption (if used)

## Editing

- Load Microsoft Movie Maker or any appropriate software for editing and compiling your movie.
- Import the relevant video clips that you have captured.
- Apply the video effects, transitions and captions to your clips, according to your plan.
- Save your project as Your Name home town.

## Narration and caption

- You can either:
  - Add narration with your own voice and save the narration as Your Name ht narration or
  - Import any relevant music.
- Make sure that the length of your audio file is equivalent to the length of your overall movie from start to end.
- Add a title caption at the beginning of the movie.
- Add your name, school and the centre number at the end of the movie as credits.
- Save your project as Your Name ht final.
- Save the complete movie as Your name ht final movie.

## Evaluation

- Explain your choice of video effects and transition and how these effects help to enhance the video to make it more interesting to your audience (your friend's parents).

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- Explain how your audio file helps to enhance the video and make it more interesting to your audience (your friend's parents).

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